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Attitudes of Students and Practitioners Regarding Ethical Acceptability of Accounting Transactions

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An Integrative Framework for the Teaching of Information Management in a Business Context

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ABSTRACT

As professional, academic and accrediting bodies have periodically reviewed the need for and content of foundational college curricula in information management, a broad-based consensus has emerged as to what is to be covered in the standard management information systems (MIS) course. Within U.S. business schools today, there is little debate over the need for MIS courses and the topics addressed therein. On the other hand, those who teach information management continue to face challenges in connecting their sometimes highly-technical subject matter to the rest of the business school curriculum and more importantly in winning over their students to the fact that MIS plays a central role in the successful operations and competitive standing of all organizations. This lack of connection manifests itself very clearly in the serious drop witnessed over recent years in business school student interest in MIS as a major area of study and as a post-graduation career option.

The purpose of this article is to present a framework for thinking about and teaching MIS that in the view of the authors better integrates the learnings of a MIS offering with the rest of the business school curriculum. The framework includes business needs, information requirements, and information systems elements. The objectives of this framework are three fold:

1. *to more accurately relate the processes and technologies of information management to the operational, managerial, and strategic needs of the enterprise.*
2. *to provide the student with a lens through which to better appreciate the connections between the effective deployment and use of MIS and the realization of the organization's goals and objectives.*
3. *to better enable the team of instructors who typically teach these courses within a business school program to provide a uniform and substantive MIS learning experience for their students while at the same time allowing individual instructors flexibility in their coverage of course materials.*

To these ends, the authors provide a historical context for the creation of their integrative learning and teaching model, an explication of the model itself, and then several illustrations of the application of this model in the teaching of representative business cases. We also outline course, student, and instructor-related benefits of employing the framework.

INTRODUCTION

The accrediting body for U.S. business schools (the Association to Advance Collegiate Schools of Business - AACSB) has mandated that all undergraduate business programs must offer at least a single introductory course in information management (Stephens and O'Hara, 2001; Foltz, O'Hara, and Wise 2004; Gorgone, et al., 2006). Given the critical role that information

management plays in organizations of all sizes and descriptions, there is little debate on this point. Over the years, various professional and academic bodies have studied and offered recommendations as to what such a course should include (Ives, et al., 2002; Cater-Steel, et al., 2004; Beachboard and Parker, 2005; Andriole, 2006; Gorgone, et al., 2006; Wang, 2007, Kesner 2008). More recently studies of employer and post-graduate student assessments of these curricular designs have emphasized the need for a greater focus on the development of student data analysis, project management, and interpersonal skills but have not otherwise seriously challenged these course content models (Romm and Pliskin, 2000; Sirias, 2002; McGann and Cahill, 2005; Johnson, Bartholomew, and Miller, 2006; and Wang and Wang 2011). Similarly, even a summary review of MIS textbook offerings will confirm that the authors of these volumes pursue a fairly consistent scope of coverage, supplementing traditional textbook materials with videos, interactive case studies, and automated learning exercises (Kroenke, 2010; Laudon and Laudon, 2010; O'Brien and Marakas, 2010; Rainer and Cegielski, 2012).

These textbooks are not without their critics (Changchit, Cutshall and Gonsalves, 2006; Chen, 2006; Mallach, 2006; Harper, Lamb and Buffington, 2008), but overall they represent a clear consensus as to what a standard business school MIS course ought to include. Although the high level topic challenges to information management course relevance, content, and design are largely behind us, MIS educators still face any number of formidable barriers in the delivery of their subject matter to students.

The first and perhaps the most formidable of these is that - despite the technological savvy of current students - student appreciation of the information management resources and tools at their disposal is rather limited. They are engaged but not enlightened users of MIS. For many of these students, the subject of MIS signifies a technical field that does not connect with many of their other business school classes and even less with their personal interests and career plans. Indeed the precipitous decline of U.S. university students majoring in information management-related fields has caused concern among professional associations and employers alike (Abraham, et al., 2006; Chrysler and Van Auken, 2006; Smith, Salaway, and Caruso, 2009). How might educators more effectively associate the meaning, role, and importance of information management with the rest of the business school curriculum, and as a desired outcome draw more students into information management-related careers?

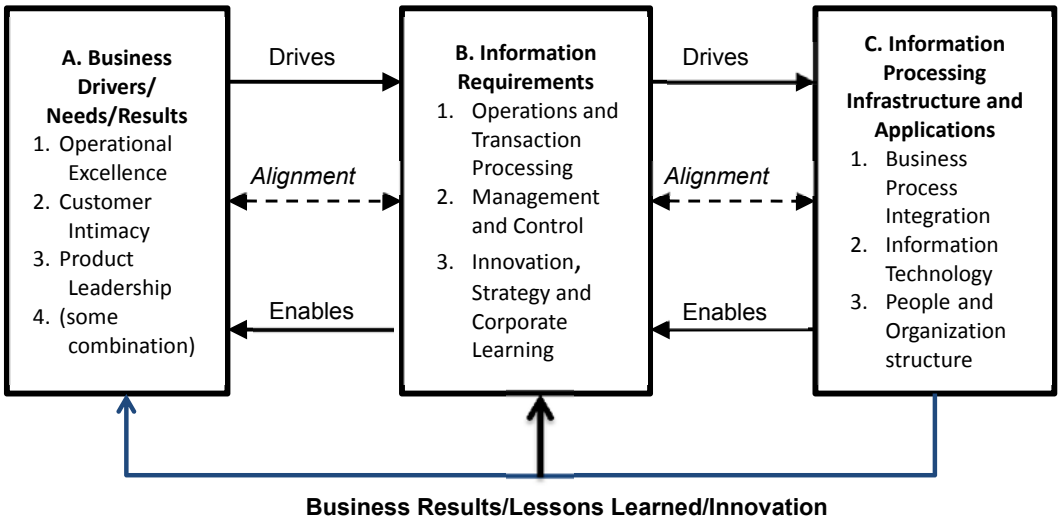
In contemplating these issues, Professors Mike Zack, Bruce Russell and Richard Kesner, a faculty team at Northeastern University's (NEU) D'Amore-McKim School of Business (DMSB), concluded that what was needed in MIS teaching was a learning framework that better connected information management thinking with the greater business goals and objectives of the enterprise. Such a framework would draw heavily on the substantial work of others, and in particular that of Michael Porter, Michael Treacy, and Fred Wiersema (Porter, 1985; Treacy and Wiersema, 1997), while providing a lens through which to better understand the complex relationships among a business' goals, its information needs, and its choices among an array of MIS solutions. This lens would then serve as the integrative element for viewing and filtering knowledge about organizations and their MIS practices. Furthermore, given the practical needs of Northeastern and other university programs to offer multiple iterations of the standard MIS course, some of which are necessarily taught by adjunct instructors, this integrative framework could also serve as a unifying element in the delivery of a common learning experience across the multiple sections of a MIS course offering.

In the article that follows, the authors chronicle the evolution and current form of the Northeastern *MIS Integrative Learning Framework* as employed in the teaching of its business school's MIS courses. (See *Exhibit 1*). After documenting the framework itself, the authors apply the Framework in the teaching of four representative MIS case studies drawn from Northeastern's introductory course – MISM 2301. We conclude with an assessment of teaching outcomes in employing the Framework.

AN INTEGRATIVE LEARNING FRAMEWORK FOR INFORMATION MANAGEMENT

Turn to any established information management textbook and you will find any number of frameworks for the study of MIS content. The authors of this article take no exception to any

Exhibit 1
The MIS Integrated Framework



Source: Zack, Michael, Russell, Bruce, and Kesner, Richard M. (2008). Revised by Kesner (2011). Northeastern University, D'Amore-McKim School of Business, MISM 2301: Introduction to Information Management in the Enterprise.

of these approaches other than to suggest that many of these frameworks tend to be more heavily weighted towards the consideration of information technology than they are towards business processes and the operational, managerial, and innovation needs of the enterprise (Kroenke, 2010; Laudon and Laudon, 2010; O'Brien and Marakas, 2010; Rainer and Cegielski, 2012). In the same vein, these published works are replete with case studies that attempt to connect real-world situations to textbook content. Many of these stories pertain to large, global enterprises and to their respective successes in the deployment of IT systems. Some of these cases are dated; others misrepresent what actually happened; and still others do not necessarily align with the particulars of the course content addressed in the textbook narrative but most of all they do not sufficiently bring the real world into the classroom (Cannon, et al., 2004; Mallach, 2006; Janicki, Fischetti and Burns, 2007; Abrahams, 2010; Ajendla 2011; Han and Rienzo, 2011; Hepner and Swanson, 2011).

After considering the costs and benefits of using some standard textbook for Northeastern's introductory information management course, the MIS faculty have settled on the authoring and use of their own customized case studies – about twenty-five in all – that consider a diverse spectrum of enterprise types and business contexts. In so doing, we have joined other colleagues who bring their own real-world business experiences to bear in the teaching of MIS. (Fox, 2002; Green, 2002; David and Comeau, 2004; Kumar, 2006; Kesner and Russell, 2008; Lucas, et al., 2009) The NEU/DMSB library of homegrown case studies covers well known organizations (e.g., Progressive Insurance, Amazon.com, and Boeing). The case study library also includes lesser known not-for-profit organizations (e.g., Young Audiences, Inc., and Partners HealthCare), retailers and wholesalers (e.g., PepsiAmerics), and global engineering-oriented enterprises (e.g., Brose Automotive, and CDM/Smith, Inc).

Though each case study in question is tailored to align with the subject for that class session (e.g. computer software, decision support systems, information security, et al.), the revised course still lacked an integrating framework that brought all of the subject matter together. To address this

major shortcoming, a team of NEU/CBA faculty that included, Mike Zack, Bruce Russell, and Richard Kesner, came together to devise a heuristic tool that would close this gap. It was from this effort in 2007 that the current *MIS Integrative Learning Framework* was born.

The framework itself draws on several seminal works in the literature as well as the extensive professional experiences of its authors, all of whom worked in industry before joining the ranks of academe. First among our inspirations was provided by Michael Porter through his value chain model, (Porter, 1985) which speaks to the integrated nature of core business processes within the enterprise and therefore the interrelatedness of the information used and generated by these processes. Porter also identifies information technology as one of the supporting structures of the modern organization and the pathway through which vital information passes from one core process to another. The Porter model has stood the test of time and remains and excellent lens through which to study the design and operation of complex enterprises.

If Porter's work speaks to the need to connect the functions and information of business operations to one another, Michael Treacy and Fred Wiersema's work on the discipline of market leaders serves as yet another key stimulant in the creation of our integrative model. (Treacy and Wiersema, 1997) In their book on market leadership, Treacy and Wiersema posit that successful enterprises focus on one of three core competencies: operational excellence, customer intimacy, or product leadership. An operationally excellent business is one that focuses on low-cost, error-free transaction process in the delivery of products and services to its customers. Wal-Mart, Amazon.com, Bank of America, and Progressive Insurance are examples of companies who thrive in this space.

By comparison, customer intimate organizations focus on anticipating the individual and personal needs of the customer, and effectively providing very tailored and customized products and services to meet those needs. In this category one would place the services of doctors, lawyers, financial planners, architects, and boutique clothiers. The final category of the Treacy/Wiersema model includes those firms that emphasize product or service innovation as their competitive objective, a grouping that would include such organizations as Apple and 3M, but also most advertising firms, consulting practices, and of course institutions of higher education.

In applying the Treacy/Wiersema to information management, the NEU team considered the relationship between an organization's particular competitive competency (i.e. either operational excellence, customer intimacy, product leadership, or some blend thereof) and its information needs. These needs occur at three levels, namely the information required to transact (operate) with the customer, to manage and control operations, and to innovate and transform the organization for competitive advantage. We found that it was relatively easy to get undergraduate students to identify the competitive competency of an enterprise featured in one of our case studies, but more challenging to get them to differentiate the ways that an organization employed information at the three levels mentioned above to help realize that competitive competency. And yet, it was the student's ability to connect the strategic business needs of the organization to its information requirements that we saw as a critical takeaway from our introduction to information management course.

Indeed, by characterizing a tier approach to information use within the enterprise, we encourage our students to better understand the enterprise at three levels of information processing needs: transacting, managing, and innovating.

1. **Transacting**: How does the organization operate? What processes do its workers execute to create value? What information do they need to succeed in these operational processes? Here we stress the use of information to operate the company more efficiently and effectively. To operate effectively and efficiently individual workers must have access to information that enables them to fulfill customer requests accurately, comprehensively, and in real-time. Before information systems, it would have been impossible to gather this comprehensive information along these lines in a timely manner.
2. **Managing**: How does the organization maintain control? What processes do managers engage to assess corporate value creation and performance? What

information do they need to succeed in these tactical processes? Here we explore the use of information to inform how we are doing relative to our expectations. To maintain control, managers need to know whether the organization is performing better or worse than expected ("are we doing things right"). Managers can then take appropriate action to correct any problems. Before information systems it would have been almost impossible to get this kind of integrated information in time to take effective corrective action.

3. **Innovating** (corporate learning, transforming and competing): How does the organization learn? What processes do leaders initiate to identify new streams of value? What information do leaders need to succeed in these transformational (or strategic) processes? Here we emphasize the use of information to provide feedback regarding the results of research and experimentation ("are we doing the right things"). To facilitate learning and transformation requires the ability to measure the outcomes of experiments rapidly and continually - and this can be done efficiently and effectively only with use of information systems.

Identifying and understanding these connections does not come easily to the undergraduate student whose exposure to the real working world is somewhat limited. Through the repetitive use of the framework across numerous business case studies over the duration of the academic term, the student develops a clearer understanding of the connections between the goals of the business and its information needs, as well as the ability to apply our model in any business setting that he/she might encounter in the future. Note too that up to this point our approach has not taken up the question of the role of specific information technologies within the enterprise. Instead our conversation with students has focused on the requirements of the business and its uses of information more generally.

With these connections firmly established, case study discussion in class may next move towards a consideration of how the required information is collected, aggregated, analyzed, and shared across the enterprise. Here the emphasis is first on the organization's core business processes and then upon the enabling information processing infrastructure (people, processes and IT) that complement those core business processes. This approach lends itself towards emphasizing the need for alignment between business processes and their supporting application-specific software and a number of other key learnings that are not at all apparent to students with only limited corporate work experience, including:

- a core business process may be supported by any number of application-specific software products;
- these software products clearly align with one or more components of the process;
- more often than not, these information systems must past data to one another as part of the business process that they enable; and
- any given information system may serve the information needs of the enterprise at any or all three levels, i.e. transacting, managing, and innovating.

While these observations may be all too apparent to our readers, we found that they were revelations to our students.

In aligning particular corporate business processes and their associated information systems with the three tiers of enterprise information processing needs, we complete our integrative model as depicted in *Exhibit 1*. As drawn, the *MIS Integrative Learning Framework* represents a closed loop of activities. From right to left, the organization's business needs *drive* its information requirements - that in turn drive investments in business process design, information technology, people, and organizational structures. We recognize the role of environmental influences on organizations, but include those influences in the business demands of the organization and the organization's strategic response.

From left to right, the *MIS Integrative Learning Framework* indicates that effective processes, information systems and so forth *enable* the collection, manipulation and sharing of information

that in turn enables the business to achieve its goals and objectives. When all of these moving pieces are properly integrated, then organizational alignment is expected. In the absence of the right choices regarding business demands, information requirements, or information systems investments, then misalignment and corporate dysfunction is expected. To reinforce the fact that this framework reflects dynamic activities, we added a flow at the bottom labeled "business results and lessons learned." The framework does not assume that business processes are autonomic (i.e., not self-correcting), but that organizational leadership will refocus goals and refine business processes according to information gathered at the transacting, managing, and innovating levels.

As a teaching approach the *MIS Integrative Learning Framework* offers four benefits. The first benefit involves parsimony. Like its predecessor Porter and Treacy/Wiersema models, it takes a complex set of organizational dynamics and summarizes them - while at the same time emphasizing the most important elements of those interactions. The second benefit involves internal validity. For our introductory MIS course, whose main themes are alignment, integration and innovation within the enterprise, the framework fits perfectly and reflects all three of these themes. The third benefit involves external validity. As a template, the framework may be readily applied to each and every case study in the course without forcing the issue or seeming repetitive – a point the authors will demonstrate below as we employ the framework in the teaching of four different case studies. The fourth and last benefit involves flexible conformity. The framework serves as a mechanism to ensure that our part-time faculty members cover a common body of content - while still affording individuality in addressing the particulars of the course syllabus.

APPLYING THE INTEGRATIVE LEARNING FRAMEWORK

In this section, the authors employ our *MIS Integrative Learning Framework* in the teaching of four representative case studies that appear in NEU/DMSB *MISM 2301, An Introduction to Information Management in the Enterprise*. This course is typically offered through twenty-four class sections each academic year, reaching approximately one thousand business school undergraduates annually. Most of the students taking MISM 2301 are second or third year students, only 30-35% percent of whom have had their first co-operative experience working for an off-campus employer prior to taking the course. The four cases below help highlight the four benefits noted above (parsimony, internal validity, external validity, and flexible conformity). The cases are listed below in accordance with their sequence in the MISM 2301 course schedule in order to highlight the progressive level of sophistication in student learning that the framework facilitates.

The Case of Progressive Insurance A Study in the Use of Computer Hardware

Introduction: The *Progressive Insurance Case* is employed in MISM 2301 as the case study for the class session concerning computer hardware and its business-related benefits. As such it is one of the early cases where the framework is employed as part of the teaching process. This case was adapted by Prof. Mike Zack from the "The Check is in the Car," *Business* 2.0, article July 2003, pp. 44-45. It was subsequently revised by Professor Richard M. Kesner for use in the standard course template used by MISM 2301 instructors.

The Case Study: If you've ever been in a car accident, you know how it feels to wait for your claim payment to arrive. Insurance companies love to hold the money as long as possible to keep every penny of interest. Progressive Insurance is the notable exception to the industry rule. It tries to pay as quickly as it can – by getting claims adjusters out of the office and onto the street where they can interact with clients. The logic behind such a radical notion? Happier customers and more productive claims reps will more than make up for the lost interest revenue.

At Progressive, that radical notion is based on its "immediate response vehicles" (IRV's) - a fleet of SUVs loaded with enough communications gear – laptops, printers, and cell phones – to allow adjusters to settle claims right at the scene of the accident. That's a big improvement over the scenario that still pervades the industry, namely: to wait a week or two to see the car and make hand written notes, snap photos, drive back to the office, type it all into the mainframe computer, and issue a request for a check.

In 1993, the IRV initiative involved just 10 adjusters in Florida. By 2003 more than 18,000

mobile claims reps shared a fleet of 2,600 IRVs. Not only did the program help improve customer retention by 20% last year; it has helped Progressive shave labor costs. Progressive's mobile adjusters can handle nearly twice the workload they could a decade ago. IRVs have also helped revenues climb from $1.8 billion to more than $9 billion during that period.

A wireless laptop provides around the clock access to Progressive's mainframe computer. An adjuster can type a claim while sitting in a body shop and go over it with the policy-holder right on the screen. The laptops also let agents use fax machines around the country as printers when a satellite office needs a hard copy instead of e-mail.

Agents spend hours every day talking to clients, auto shops, and other adjusters on their cell phones, but it's the two-way radio feature that gets the most use. Dispatchers monitor agents' locations, sending the closest adjuster to investigate a scene. Digital cameras let agents snap as many pictures as they need, upload them to Progressive's computers for storage, and share them with managers if necessary. Some adjusters even film short videos that are used to document traffic patterns at accident prone intersections. Each IRV includes an ink-jet printer to spit out paper copies of estimates, claims, and, of course, checks.

The Application of the MIS Integrative Learning Framework: In teaching the Progressive Insurance case, we employ our framework in several different but related ways. First we use it to introduce the company to the class by asking students to identify Progressive's key business drivers and success factors. We then ask them to identify the information needs of the company in terms of the three processing levels listed in the middle box of the framework. With this conversation as context, we have the class walk through the various steps in Progressive's IRV-enabled claims process, identifying among other things the information needs and the enabling computer hardware employed in each process step.

We then return to the framework (see *Exhibit 2*) where we review the connection between the deployment of well-integrated, low-cost computer hardware in the IRV and the IT-enabled collection of information at the transactional, managerial and innovational levels within the enterprise's claims process. Our goal here is to get our students to associate the aligned investment in computer hardware with the realizations of Progressive's business goals and objectives. Given the early positioning of this case in the course syllabus, the instructor typically leads the students through this exercise but because the case itself is so accessible, students are already building their skills with and appreciation of the framework as a learning tool.

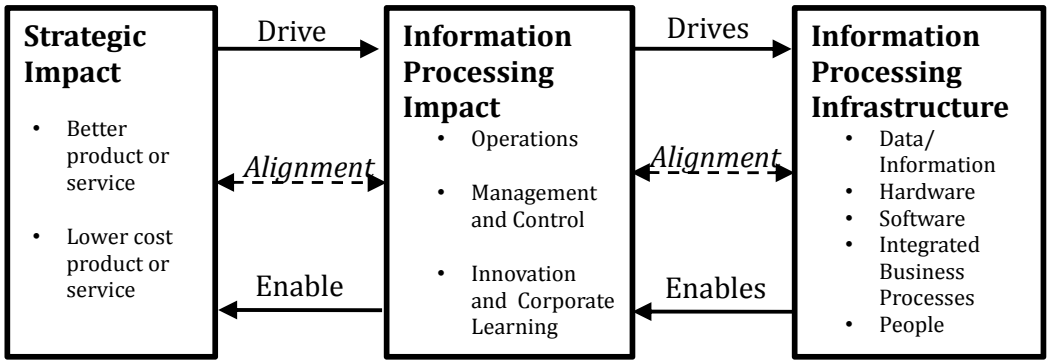
The Case of Brose Automotive A Study in the Use of Enterprise Systems

Introduction: The *Brose Automotive Case* is employed in MISM 2301 in the first class session devoted to the use of enterprise software within a global enterprise. This case initially drew upon a 2004 Brose news release *www.brose.de/en/pub/company*. It was subsequently revised in 2010 by Professor Richard M. Kesner, drawing upon *www.brose.firmenverzeichnis*, for use in the standard course template used by MISM 2301 instructors.

The Case Study: The Brose Group supplies windows, doors, seat adjusters, and related products for more than 40 auto brands. Major customers include General Motors, Ford, DaimlerChrysler, BMW, Porsche, Volkswagen, Toyota, and Honda. Founded as an auto and aircraft parts manufacturer in Berlin in 1908, the company today has facilities in more than 48 locations in 25 different countries and including a world-wide workforce of 14,000 employees. Revenues for 2009 exceeded 2.6 billion euros.

In the 1990s, Brose enjoyed rapid growth- some of it coming from the acquisition of existing companies and some of it coming from the organic expansion of Brose's own facilities. As it grew Brose inherited or acquired a wide range of functional software applications; including accounting, human resources, manufacturing, and supply chain management applications. But as their business grew and became both more complex and more interdependent, Brose Group management found that existing information systems were unable to support the company's emerging operational, control, and planning/innovation needs. Too many different information systems meant a lack of standardization and hampered communication among suppliers, plants, and customers. Brose decided to standardize operations on R/3, an ERP application licensed by SAP that supports more than a thousand different business processes. There were distinct advantages for the corporation in making this choice:

EXHIBIT 2
MIS INTEGRATIVE LEARNING FRAMEWORK AND THE PROGRESSIVE INSURANCE CASE



Levels of Information Use:	The Impact of Computer Hardware on Core Process Information Management
Operations	• Fewer steps/less direct data entry • Less labor/more efficient • Less paper/no mail • More convenient • More effective dispatching of agents
Management and control	• Goal = correct probability of accidents → premium revenue > claims = expenses • Compare actual vs. expected claims in more timely manner • Better data means better control/less fraud
Innovation and corporate learning	• Learn more about characteristics of high/low risk classes • Improve underwriting/actuarial models

Source: Zack, Michael (2010). Revised by Richard M. Kesner (2012). Northeastern University, D'Amore-McKim School of Business, MISM 2301: Introduction to Information Management in the Enterprise.

1. The SAP suite of enterprise software applications aligned nicely with Brose business processes – although in a number of instances Brose reengineered and standardized established business processes to make better use of SAP ERP capabilities.
2. The SAP package afforded better oversight and measure of Brose business processes through real-time report and process value chain integration.
3. The software suite also allowed Brose to accumulate comprehensive and accurate data about key processes and business performance that was subsequently employed to learn about organizational weaknesses and best practices (leading to process improvements and better enterprise business forecasting and long-term planning).

Brose's conversion of its core information management systems to the SAP ERP system has contributed to dramatic improvements in enter-

prise-wide productivity. In 1994, Brose achieved sales of 541 million euros with 2,900 employees, or 186,000 euros per employee. Ten years later, in 2004, Brose attained sales of 2 billion euros with 8,200 employees, or 240,000 euros per employee. In terms of expenses, over it lifetime the ERP adoption also lowered the total cost of information management and information technology investments. And in 2009, despite a world-wide economic downturn and the nearly doubling of its size, the Brose Group has maintained these impressive numbers.

In terms of the formidable challenge in implementing SAP across Brose, the Brose/SAP consulting team decided on a pilot approach. The first installation was conducted at a new plant in Curitiba, Brazil. The team constructed the implementation to be used as a prototype for installations at additional plants. Developing the first implementation was no small feat, because it involved information systems for sales and distribution, materials management, production planning, quality management, and financial accounting and control. Once the initial system was operational at the Curitiba plant, the prototype was rolled out to additional facilities. The second implementation, in Puebla, Mexico, required just 6 months for first operational capability, and the next implementation in Meerane, Germany, was operational in just 19 weeks.

The Application of the MIS Integrative Learning Framework: As with many of the case studies employed in MISM 2301, our students are obliged to read the Brose case in advance of the session and to answer a series of questions, including what does Brose do and what factors are critical to its success. They are also asked about the role of information resources in enabling operations, management, and competitive advantage at Brose. This preparatory work facilitates the initial case discussion that focused on relating what the class knew about Brose to the three elements represented in the framework.

At the next level of analysis, the class drilled down on particular roles within the Brose organization- including those of the chief financial officer, the directors of procurement and logistics, a typical factory manager, and the vice president of human resources. For each of these roles, the instructor asked the class to identify the responsibilities of each job, the information required to perform that role, and the Brose source information systems. The point here was to get the class to appreciate the interconnectedness of these various functions within Brose and their need to share information. Once the description of each role was detailed on the chalk board in class, it was easy for all to see the connections. The high level learning from this particular conversation is summarized below (and in *Exhibit 3*).

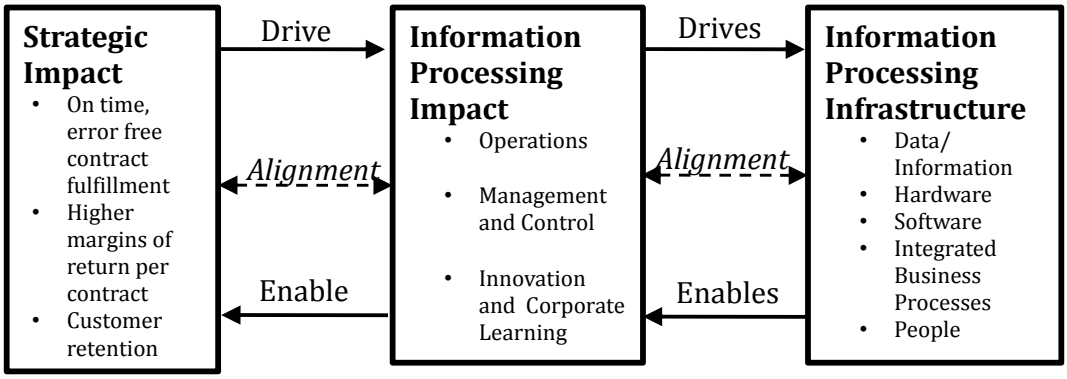
- To succeed Brose needed to ensure the alignment of its information systems with particular business functions and the core needs of the organization.
- It was critical that Brose operations and management could access and share information across global geographies.
- It was also critical that Brose integrated its business processes and therefore the information required for/generated by these processes.
- The deployment of single (standardized) information systems across numerous company functions and departments enabled significant improvements in process coordination and information sharing.
- These same systems provided the measurement mechanisms needed for process improvement, optimization of resources, and risk management.
- Finally, the data generated by these systems provided the means for near- and long-term forecasting of product and process costs so critical to the success of Brose's contract negotiations with customers.

The reader will hopefully agree that these are fairly sophisticated observations coming from students without any real hands-on experience within a global supply-chain-driven enterprise. Our framework clearly contributed to their ability to draw these and similar conclusions from a facilitated discussion of the case study.

The Case of CDM/Smith, Inc. A Study in the Use of Knowledge Management Systems

Introduction: The *CDM/Smith Case* serves several purposes within the MISM 2301 curriculum. It introduces students to a different type of business – an engineering/consulting firm. It

Exhibit 3
The MIS Integrative Learning Framework and the Brose Automotive Case



Levels of Information Use:	The Impact of Computer Enterprise Information Systems on Core Process Information Management
Operations	• Timely acquisition of raw materials • Optimal allocation and set-up of appropriate factory space • Timely delivery of product that meets the strict design specifications of the contract • Proactive sales and contracting processes in anticipation of new model years
Management and control	• Forecasting raw materials, labor and overhead costs to affect accurate contract pricing • Optimize factory, warehousing, and distribution capabilities • Managing and coordinating global process quality and cost controls
Innovation and corporate learning	• Share material sciences innovations with clients • Exploit intellectual capital and manufacturing/ supply chain process improvements to offer new products/services

Source: Kesner, Richard M. (2012). Northeastern University, D'Amore-McKim School of Business, MISM 2301: Introduction to Information Management in the Enterprise.

provides a context for the consideration of a topic that is somewhat remote from the undergraduate student experience, namely: the process of knowledge management. Also, it nicely reinforces the need for the system alignment, integration, and innovation to strengthen the overall performance of the enterprise. Professor Kesner's association with CDM, Inc. (then Camp, Dress, and McKee, Inc.) goes back to 1992. In consultation with this global environmental engineering firm, he assisted in the evolution of their MIS organization (Kesner 1996). Since then he has worked directly with CDM/Smith on numerous decision support and knowledge management proj-

ects - including those described in the case that follows. In 2011, Professor Kesner developed the *CDM Case* for used by MISM 2301 instructors.

The Case Study: CDM was founded as a partnership in 1947 by Thomas R. Camp, Herman G. Dresser, and Jack E. McKee. In its early years and throughout the 1950s, the partnership established its reputation in New England as an engineering practice specializing in water supply and water pollution control. Many early clients in Maine, New Hampshire, and Massachusetts remain CDM clients today. In the 1960s, CDM expanded globally and in 1970 moved from a partnership to a corporate governance model.

During the 1980s, while continuing to build on its traditional base of water and wastewater expertise, CDM made an entry into the hazardous waste management field as a program manager for one of the Environmental Protection Agency's first major Superfund contracts. To meet the unique service and contracting requirements of work in the federal sector, CDM established a wholly owned subsidiary, CDM Federal Programs Corporation, in 1986. These developments were followed in the early 1990's by a move from delivering consulting services into more extensive design-build, construction, and general contracting projects. At the same time, the firm expanded its capabilities in transportation, operations, information management, and geotechnical services. Today, CDM is a consulting, engineering, construction, and operations firm providing exceptional service to public and private clients worldwide. The firm has about 4,500 employees across 100+ offices globally, and annual revenues of more than $1 billion. As a professional services firm, CDM is an intense user of information systems and related technologies but even more so, the firm prides itself on hiring and retaining the best and the brightest scientists and engineers in the field of environmental engineering. Each year CDM executes from 4-6,000 projects for its clients – some costing $10,000's and lasting but a few weeks, other worth $100's of millions and running over several years or even several decades. It is paramount to CDM's success as a consulting/engineering firm that it achieves the following:

- identify best practices in the execution of projects;
- leverage its engineering knowledge across its global portfolio of engineering projects;
- continue to refine, clarify, and validate its technical knowledge;
- establish discrete project teams for each new client assignment that bring to bear the most appropriate expertise from across the firm;
- mentor incoming junior engineers; and
- monitor all projects to moderate project risk and achieve the most positive outcomes in terms of the quality, timeliness, and cost-effectiveness of client deliverables.

Initially, CDM's knowledge management practices were not particularly formalized. New hires received orientation training and were assigned to local mentors in their assigned office. A corporate library housed CDM publications on technical subjects and each field office maintained a library of what they deemed best-practice client deliverables (e.g. reports, studies, drawings, and the like). This approach worked well enough when the company was small and most employees knew one another. But as the firm grew in the late-1980's and 1990's, this informal approach proved untenable. To reach out, the staff employed "Dispatcher," literally an e-mail with an engineering or scientific question address to the entire firm requesting input. For years, Dispatcher served as the firm's primary knowledge-sharing platform.

In more recent years, the firm has institutionalized communities of practice, creating two dozen or more so-call "Technical Disciplines." Each Technical Discipline focuses on a body of knowledge (e.g. waste water management, soil reclamation, geophysics, drinking water management, and so forth) and maintains its own Intranet portal of explicit knowledge complete with a library of specific management, trade, and technical content, as well as guidelines, frameworks, case studies, templates, and examples of best practices. All content housed on each site is vetted by so-called "technical experts," who are senior members of their respective Technical Discipline communities. These portals also facilitate the sharing of tacit knowledge through discussion forums, meeting and conference event notices, Technical Discipline e-mail accounts, and a directory of contact information on technical experts.

CDM has for many years maintained Oracle's e-Business Suite as an enterprise resource planning

(ERP) system for operations and project management. This software suite monitors the data generated for project delivery, resource consumption, expense generation, profitability and the like. To this set of systems, CDM has now added econometric modeling to measure and assess individual project performance against live project data drawn from the firm's aforementioned ERP system. This decision support platform assesses patterns of performance across the thousands of projects executed by the firm annually and employs this data to monitor and as necessary revise corporate processes and reassess Technical Discipline and overall project management best practices. In this manner, best-practices knowledge is applied, measured against actual project delivery outcomes and then continuously improved and reapplied to work processes.

The Application of the MIS Integrative Learning Framework: The initial challenge with this case is that its business context is fairly inaccessible to most undergraduates. As a global environmental engineering firm, running projects mostly for government agencies of one kind or another, and competing for work through request for proposal (RFP) responses, CDM is very different from other ventures that business school students might encounter. And yet the CDM business model, their core processes, and their need to manage firm intellectual property (IP) offer a rich context for course discussion and learning.

In this instance, the framework helps to introduce the students to a firm that competes on product and service leadership and whose competitive advantage is based almost entirely on the track record of its engineers, scientists, and project managers (See *Exhibit 4*). The information needs of CDM revolve around two separate but related bodies of content. On the one hand, project delivery entails access to and the use of the deep scientific and technical knowledge of CDM engineers and scientists. On the other hand, it concerns access to project performance data; work schedules, Gantt charts, bills of materials, project budgets, and the like. The latter content resides in the firm's enterprise resource management systems (i.e., ERP) for finance, human resources, and project management. The former knowledge content was not as easily captured and managed through IT until the firm established a series of knowledge portals on the corporate Intranet as supplemented by various social networking tools. The CDM case addresses the more challenging task of managing the technical knowledge of CDM personnel and the specialized information systems in place to facilitate the capture, documentation and exchange of both explicit and tacit knowledge.

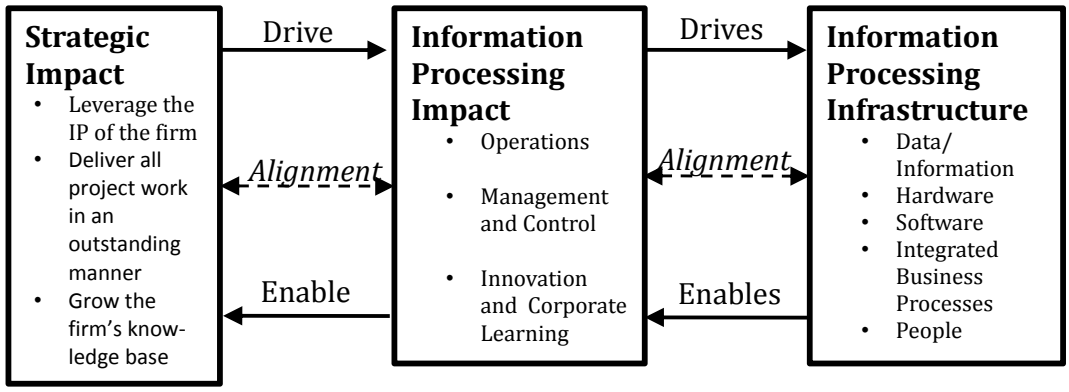
The framework helps the course instructor and his/her students to isolate the information needs of the engineer operating within a project team, the project manager overseeing project delivery, and corporate management balancing the overall profitability and risks of CDM's project portfolio. As with the other cases discussed in this article, our focus in these discussions is on the core business processes of the firm and their associated information needs. From here we would move into a consideration of the respective roles of CDM's knowledge management and ERP systems in satisfying these needs.

The Case of PepsiAmericas A Study in the Use of Data for Corporate Transformation

Introduction: The *PepsiAmericas Case* is employed towards the end of MISM 2301 when we address the subject of decision support systems but might be used at other junctures as well since it so beautifully illustrates the transformational role that effective information management can play within the enterprise. The original case study comes from MIT's Center for Information System Research (CISR) which regularly publishes outstanding studies concerning the role of information systems in business. Their PepsiAmericas white paper is a fine example of this genre (Beath and Ross, 2010). Professor Richard Kesner employs the complete case in his graduate MIS course and has also adapted the case below for use in MISM 2301.

The Case Study: PepsiAmericas (PAS) is the world's second largest manufacturer and distributor of Pepsi beverages, operating in nineteen mostly Midwestern states in the U.S. (69% of sales), central and Eastern Europe (26% of Sales) and the Caribbean (5% of sales). Net sales in 2008 totaled nearly $5 billion or 20% of PepsiCo's total US beverage sales. In 2009 a recession hit the U.S. economy, but PepsiAmericas was also faced with two more important long-term challenges: (1) a declining U.S. market for carbonated soft drinks, and (2) increasingly powerful retailers who were squeezing PAS profit margins. In addition, PepsiAmericas product line had moved

Exhibit 4
The MIS Integrative Learning Framework and the CDM/Smith, Inc. Case



Levels of Information Use:	The Impact of the Firm's Knowledge Management Platform on Core Process Information Management
Operations	• Create a share libraries of environmental engineering best practices • Reuse and repurpose firm intellectual property • Establish a social network that identifies experts (a.k.a. lead practitioners) and facilitates interactions with more junior staff
Management and control	• Exercise quality control over the knowledge library • assign specialist teams and lead practitioners to create new IP to fills gaps in explicit knowledge • Ensure that new/junior practitioners are trained in the use of the knowledge library and the expertise social network
Innovation and corporate learning	• Recruit appropriate talent to extend and strength firm IP strategically • Recognize and reward those who effectively leverage the firm's KM platforms

Source: Kesner, Richard M. (2012). Northeastern University, D'Amore-McKim School of Business, MISM 2301: Introduction to Information Management in the Enterprise.

from 35-40 products in the mid-1990's to nearly 400 products by 2009.

These developments forced PepsiAmericas to embrace a completely new operating model. In the past, distribution was handled by the local delivery person, who "owned" a particular route of retail customer stores. The delivery person would load his/her truck in anticipation of what was needed at each of his/her assigned locations. Over time, the delivery person knew what to expect and could pretty much address customer needs on a day-to-day basis. However, as Pepsi moved from 35 to 400 products and as the packaging for these products became less uniform, it proved difficult to know about, let alone carry the right mix of products in the truck. Furthermore, chains like Wal-Mart, CVS Drug Stores, and Mobil Gas Stations, preferred centralized

procurement processes and annual, national contracts. Pepsi was therefore obliged to create a three-tier distribution platform that would address the needs of these large national and regional customers while serving the needs of their established local customer model.

In response to these pressures and challenges, PepsiAmericas invested heavily in supply-chain management (SCM) and manufacturing enterprise resource planning (ERP) systems. With these systems the firm integrated its core business processes (i.e. procurement, manufacturing, selling, and warehousing and distribution) and automated data capture at every key step along its value chain. To PepsiAmericas, one of the biggest benefits of its ERPs was the collection and measurement of business process outcomes for better management, control and planning of large and complex business processes. The company used these rich data resources and related process knowledge to negotiate better contracts for raw materials, lower supply chain operating costs, more accurately monitor consumer demand, and ultimately strike more profitable deals with its large retail customers. In effect PepsiAmericas employed customer data as a competitive asset, collecting vast amounts of data as part of daily operations (transacting) and then employing that data for management and control - as well as for innovation in product development and customer service.

This transformation process was dubbed the "Customer Optimization to the 3rd power – Planning + Selling + Delivery" program and was intended to reduce inventory management issues, increase productivity across PepsiAmericas' production platforms, and improve overall customer service. For example, national customers, like Wal-Mart, fed point-of sales data directly into PSA's distribution system, informing the detailed product mix and quantities going from PSA to particular sales locations. And at the other end of the spectrum, those PSA employees serving small local stores employed detail historical sales data to forecast the requirements and to provide the right daily mix of products.

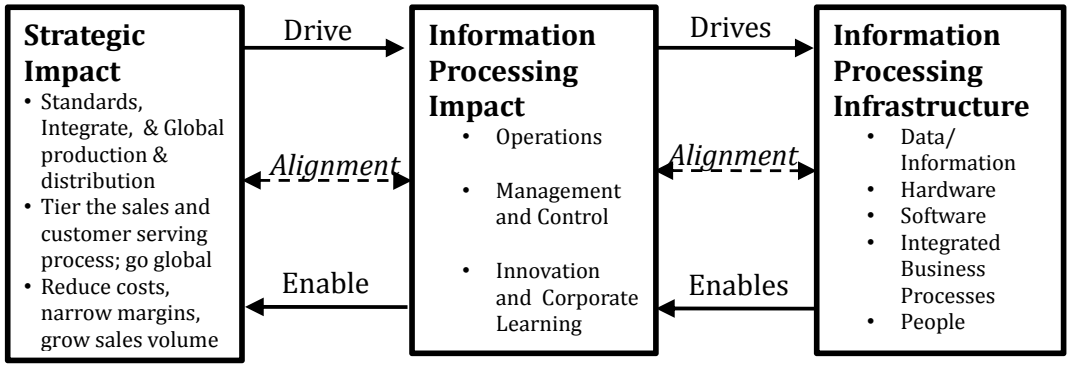
At yet another level, these continuous data feeds from PSA's back-end transaction systems to the firm's management and decision support systems provides PepsiAmericas executives with ready access to real-time data to fine tune business processes and to promptly address performance issues. This integrated approach also drove decisions concerning the acquisition of both additional production capabilities and new lines of products. It also contributed to the continuous improvement of business processes and services. Last but not least, the PepsiAmericas leadership employed their data assets to build competitive knowledge in three areas that were critical to their long-term success, namely: enhanced customer relationship management, greater supply-chain process/IT integration, and the increased use of data-driven managerial decision making. PSA continues to mine data across the enterprise as a means to measure business results and to inform best practices.

The Application of the MIS Integrative Learning Framework: More often than not typical MIS case studies focus on the implementation of major information systems and while the PepsiAmericas case does concern itself in part with acquiring new enterprise software, this story is actually about how the organization leveraged business process data to transform its competitive position in its marketplace. Though during the timeline of the case study, PepsiAmericas did expand globally, primarily in Eastern Europe and Central America, its core processes of bottling and product distribution did not change. What did change dramatically was how the organization began to use information in ways that allowed PepsiAmericas to overcome the challenges wrought by increasing product line complexity and the need to forecast and then commit to delivery schedules and pricing when negotiating with global retail chain customers.

To achieve this capability as an enterprise, PepsiAmericas was obliged to standardize both its processes and the data that they generated. Transactional data was integrated and aggregated for management and control purposes and then fed into a decision support system for the purposes of production and supply chain coordination and forecasting. Ultimately, this integrated data management approach enabled creative solutions in dealing with the firm's strategic partners and customers.

By the time that this particular case appears in the MISM 2301 curriculum, our students are well versed in the use of the *MIS Integrative Learning Framework*, allowing the instructor to ask more sophisticated questions concerning the role of information management in achieving

Exhibit 5
The MIS Integrative Learning Framework and the PepsiAmericas Case



Levels of Information Use:	The Impact of Decision Support Systems on Core Process Information Management
Operations	• Standardize and inform the core production and distribution processes or the organization • Define products, pricing, servicing, and business relations in a three-tier model • Able to differentiate levels of service depending upon the tier occupied by the customer (i.e. local, regional, or national/supranational) • Optimize production and distribution processes to reduce costs
Management and control	• Oversee national and regional as well as local customer relationships and contracts • Establish new metrics for the performance evaluation of customer relationships and internal personnel; better forecasting • Structure staff train, compensation and incentives in line with three-tier sales model.
Innovation and corporate learning	• Explore new relationships, contract arrangements, product offerings • Exploit corporate learning to compete globally

Source: Kesner, Richard M. (2012). Northeastern University, D'Amore-McKim School of Business, MISM 2301: Introduction to Information Management in the Enterprise.

the desired operational, managerial and strategic outcomes within PepsiAmericas (See *Exhibit 5*). Once the students themselves establish the connections between the business focus of the organization and its information needs, they are then asked to identify and justify the enabling technologies deployed by the firm as it shifted from a local to a global distribution mindset and operating model. Here again, the themes of systems alignment, enterprise-wide information integration, and business process innovation and transformation emerge as findings from the application of the framework to the facts of the case. This outcome is all the more satisfying in that the students themselves are now positioned to drive the conversation.

LESSONS LEARNED

The *MIS Integrative Learning Framework*, as deployed in NEU/DMSB's *Introduction to Information Management in the Enterprise (MISM 2301)*, has proven itself to be a highly beneficial tool in the teaching of MIS. With almost three academic years of field testing completed and over seventy-five sections and twenty-five-hundred students taught with the tool, Northeastern's MIS faculty are unanimous in their satisfaction with the framework. While the framework has produced four pedagogical benefits noted earlier (parsimony, internal validity, external validity, and flexible conformity), the student satisfaction impact is less clear. From the standpoint of student satisfaction with MISM 2301 course, we have noted only a modest improvement in the scores produced in our end-of-term student surveys. Similarly, we have witnessed only a small increase in the number of students from within the business school who have chosen to major in MIS. But there are many factors that enter into student opinion survey results and career choices - topics beyond the focus of the present article.

However, the findings for assurance of learning outcomes are supportive of the framework's efficacy. One very clear indicator of the effectiveness of the framework as a teaching tool comes from the results of MISM 2301's capstone case study assignment. This case concerns a global media company and includes an array of difficult questions about how this business operates, manages, and competes. Our introductory MIS course has always concluded with such a case, though the current assignment is intentionally more demanding than its predecessors. What is most striking here is the overall consistency and quality of student responses to this assignment. In the past, capstone case responses varied widely and were not particularly insightful. By contrast, in recent years as our faculty have embraced the framework in their teaching and as our students have come to master the framework as a learning aid in their MIS work, the capstone submissions have become both more consistent and higher quality. These successes have led to the introduction of the framework into most NEU business school undergraduate and graduate MIS.

The results in the capstone case submissions also speak to instructor-oriented benefits in the use of the framework. First, it is clear that with the framework in place, the cohort of faculty who instruct in MISM 2301 are doing a more uniform job in their coverage of course content and in their general approach to the teaching of those materials, leading to higher satisfaction among adjuncts and better performance ratings. Second, this has led to a more uniform learning experience for the student from section to section of the course, an important develop in light of DMSB decision to establish a competency exam for graduating seniors. Third, the faculty themselves have expressed increased satisfaction in terms of MISM 2301 teaching efficiency, the quality of class discussions, and the quality of work submitted by students. By all of these measures, the quality of delivery of MISM 2301 has improved and has also made it easier to attract and retain quality adjunct instructors for the course offering.

While the absolute measure of learning outcomes stemming from the application of our *MIS Integrated Framework* remain elusive, (Michlitsch and Sidle, 2002; Mukherjee, 2005; Chrysler and Van Auken, 2006) there is already both qualitative and quantitative evidence to suggest that our approach offers considerable benefit to those who study and those who teach information management in Northeastern's business school programs.

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Success in Gateway Business Courses: What Matters and What Can We Do?

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ABSTRACT

Introductory business classes, particularly those with a quantitative emphasis, can often serve as a barrier to students rather than as a gateway. This study looks at how study skills, aptitude, and external factors affect classroom performance. We examine whether, when, how, and how much students read their textbook. We also look at selected deep versus surface study skills, and aptitude (as measured by ACT scores). We find positive support for some deep study skills and negative support for surface learning techniques. Our strongest result is the negative impact of hours spent working. With educational costs increasing it is difficult for many students not to work, but they should be advised of the potential consequences.

INTRODUCTION

Educators have recognized that introductory courses can act as either gateways or as barriers to students pursuing degrees in a given area of study. For example, Twigg (2005) states that comprehensive universities have failure and withdrawal rates in introductory courses ranging from 22 percent to 45 percent. In particular, introductory courses with topics related to mathematics seem to cause students a great deal of difficulty and may prevent students from majoring in fields for which those courses are a prerequisite. In our experience as teachers of introductory business courses, students in colleges of business struggle with both the introduction to finance and the introduction to operations management classes given the relatively high level of quantitative topics in those courses.

The question of interest is whether we as professors can help otherwise capable students succeed in the introductory courses. This is a topic that has received a great deal of attention outside of colleges of business but to a lesser extent in disciplines such as finance or operations manage-

ment. Results on whether instructors can influence students' study habits and whether and which "deep" versus "surface" study skills matter are sometimes conflicting. The purpose of this paper is to examine the effect of several factors on student success in introductory undergraduate business courses. The study examines whether, when, how, and how much students read the textbook affect performance (final exam scores). We also consider whether the use of selected deep versus surface learning skills impacts final exam scores. We also examine the effect of working outside the classroom on student performance. Finally, we consider the relationship between standardized test scores (the ACT) and course performance. We find a negative relationship between the time spent working and final exam scores. Indeed, students who work fewer than 30 hours per week have final exam scores which are higher by 6 – 7 points, or a full letter grade. We also find a negative relationship between the use of the surface study skills of cramming for exams and the amount of time spent memorizing facts and exam performance. As found in other research discussed below, we find a positive relationship between ACT scores and final exam scores. Finally, we find that students who spend time studying for exams with classmates perform better on final exams than students who do not.

PRIOR RESEARCH

Numerous studies of undergraduate students in business, but more so in the sciences, examine the impact of "surface" versus "deep" study skills in general, and how students use (or do not use) textbooks to study in particular. Examples of surface study skills or strategies include using flashcards, not reading the textbook at all, or only to cram for exams. Examples of deep study skills include reading/annotating material before lectures, testing oneself before exams, and forming study groups. Finally, several studies consider the effect of effort as measured by the number of hours spent studying/working and ability as measured by ACT/SAT scores on performance.

Effectiveness of Deep vs. Surface study skills

One of the leading works of the benefits of teaching towards encouraging students to use deep study skills is the oft-cited study by Biggs (1999). In essence, he suggests that the highest level of learning occurs when teaching results in student-learning focused activities. Another useful study is the meta-analysis of the relationship between psychological study skill factors (PSFs) and college success by Robbin et al (2004). They demonstrate that PSFs explain more of success (as measured by effect on GPA and on retention rates) than socioeconomic status, standardized test scores, or high school GPA.

Perhaps the shallowest of surface study skills is to choose not to read the assigned textbook at all. It will not come as a surprise to experienced instructors that students in general do not spend much time reading their textbooks. Clump et al (2004) find that on average about 27% of psychology students read the assigned textbooks before class. Indeed, about 80% of introductory psychology students reported not reading the book at all in introductory classes (Sikorski et al 2002). Phillips and Philips (2007) report that accounting students read only 17 percent of the textbook chapters before the day of class. They also note that students who scored in the top quartile of performance in their introductory accounting classes were more likely to read the material *before* class; in contrast, students who performed in the bottom quartile were more likely to read the material *after* the lecture.

Elias (2005) reports the use of deep studying skills has a significant positive correlation with expected course grade and prior GPA in a study of accounting courses. Holsuch (2000) reports similar results in the natural sciences: high performing students used deeper learning strategies while low and average students relied on memorization. Phillips (2001) finds that GPA is positively related to complex study beliefs (e.g., students who believe that knowledge is complex will adopt study strategies that seek to consolidate knowledge from a variety of sources rather than simply relying on memorization of facts in textbook or from lecture). The evidence of the effect of pedagogical supplements such as study guides on student performance is mixed. Dickson et al (2005) report that students who were required to complete the study guide performed significantly better on exams than students who did not. Yet, Gurung (2004 and 2003) finds no such positive correlation between pedagogical aids and performance.

Effort and Performance

Nonis et al (2006) report that neither time spent studying nor time spent at work by undergraduate business students is significantly related to academic performance, but they report that ACT scores are. Okpala et al (2000) find that the amount of time spent studying in an undergraduate economics class was not related to performance while GPA was. Further, SAT scores were positively related to performance but only for the above-average students. In contrast, Stinebrickner and Stinebrickner's (2007) report that a one-hour increase in daily study time had the same positive effect on student grades as a five percent increase in ACT scores. Dundes and Marx (2006) also found that students who worked 10 to 19 hours per week were more likely to have higher GPAs than students who work fewer than 10 hours or more than 20 hours per week.

THE STUDY

As noted above, the evidence is mixed on the effect of pedagogical supplements, time spent studying or at work, and standardized test scores on test performance. Several studies find that students who use deep learning strategies outperform students who do not. We designed our study to add to the research on those points. We used a survey, test results, and demographic data from 267 undergraduate students taking introductory operations management and finance classes. To control for teaching ability, we collected data from classes taught by three different professors of varying ranks and experience. We designed our survey following the work done by Clump et al (2004), Biggs et al (2001), Phillips and Phillips, Murden and Gillespie (1997), Sikorski et al (2002). The survey asked the students a series of questions on when and how often students read the textbook. We also examine the effect of four surface study skills on final exam performance: (1) looking at PowerPoint presentations, (2) using the study guide, (3) reading to memorize information/facts, and (4) "cramming" for exams. We also consider the impact of six deep study skills on final exam scores: (1) changing study habits if performed poorly on the midterm, (2) studying/explaining exhibits, charts, diagrams in the textbook, (3) taking notes while reading the textbook, (4) underlining/highlighting the textbook, (5) devising likely exam questions to test oneself, and (6) studying with classmates.

Survey Results

Table 1 below presents data on when students reported reading the required textbook. Table 1a reports the time spent reading per week versus how much time students thought we professors expected them to read. Perhaps not surprising, only 12% of students report that they frequently read the textbook before class and only 20% report that they frequently read after the lecture. The results indicate that it is only when confronted with exams that a majority of students report that they read the textbook frequently. Further, it may be sobering to notice from Table 1a that approximately half the students reported spending fewer than one hour per week reading the required textbook even though only 5% of students thought that the professor expected that low a level of reading. Also, only slightly more than a third read the book between one and three hours per week even though more than half the student respondents believed that the teacher expected that level of time commitment.

Table 1
When do you read?

When	Frequently or Always
Before attending class	12%
After material is covered in class	20%
When doing homework	46%
When studying for exams	54%

Table 1a
Time spent reading

Reading Time per Week	Spent by Students	Students Perceptions of Professor Expectations
< 1 hour	49%	5%
1 – 3 hours	36%	58%
> 3 hours	5%	26%
Do not read	10%	-----
Unsure about professor expectations		11%

We then asked a series of questions gauging the students' use of deep versus surface study skills. We used a five-point Likert scale ranging from 5,

"always", to 1, "never/rarely." Table 2 reports the results grouped by our understanding of 'deep' versus 'surface' study skills. In general, students were more likely to use surface study skills than to use deep learning skills. It may be especially surprising to see the low means for studying with classmates or self-testing indicating that fewer students engage in these study habits.

Table 2
Surface vs. Deep Study Skills
(Mean responses*)

	When studying	When Preparing for exams
Surface		
Look at PowerPoint Presentations	4.01	4.14
Use study guide	2.48	3.70
Memorize information/ facts	2.01	3.31
Cram for exams		3.24
Deep		
Change study habits		3.67
Study/explain exhibits, charts, diagrams	2.61	2.99
Take notes	2.53	
Underline/highlight	2.47	
Test myself/make up exam questions	2.43	2.33
Study with classmates		2.35

*Means based on a 5-point scale.
5=Always to 1=Never

Table 3 reports the demographic data. It may be disconcerting to see that these students are largely in school full-time (86% are taking three or more classes per quarter), but more than half the students work at least 20 hours a week, and one in ten works full-time.

With the results from the survey, and with final exam scores from a standard exam across all sections (after identifying which scores came from sections in which we intervened to promote the use of deep study skills), we performed a stepwise regression analysis to identify the model variables that best explain the dependent variable, i.e., the final exam score. We further used the Akaike Information Criteria (AIC) to confirm the goodness of fit (Bozdogan, 2000; Beal, 2005). The table below indicates that three variables are significantly ($p \leq 0.05$) related to final exam score and two additional variables are significant at $p < 0.10$.

Table 3
Demographic Information
(n = 267)

Gender	
Male	53%
Female	46%
Level in School	
Sophomore	5%
Junior	30%
Senior	65%
# Classes Enrolled in this Quarter	
1	7%
2	7%
3	8%
4	53%
5	24%
6	1%
Hours Worked Outside of School	
0 hrs	12%
< 10 hrs	13%
10 – 19 hrs	21%
20 - 29 hrs	31%
30 - 39 hrs	13%
40 or more hrs	10%

RESULTS AND DISCUSSION

The regression results found no statistically significant relationship on final exam performance between either the number of hours spent reading, whether students read before or after the lecture, while doing homework, or before the exams. Of the four surface study skills considered, we find two significant negative relationships. Students who reported that they always or frequently crammed before exams had lower final exam scores ($p = 0.055$) than other students. Similarly, students who reported that they always or frequently read over and over to memorize facts performed worse on the final exam than students who did not ($p = 0.091$). Of

Table 4
Regression Results
(F-value 15.85, Pr < 0.001)
Dependent Variable = Final Exam Score

	Parameter Estimate	P value
Intercept	57.57	<0.001
ACT score	1.44	<0.001
# hrs worked per week	-1.55	0.002
Student always...never memorizes facts for an exam	-1.09	0.055
Student always...never studies for exams with classmates	0.97	0.089
Student always...never "crams" for exams	-0.97	0.091
R-Sq = 0.31		
The order above notes the order in which the independent variables entered the model.		

the six deep study skills examined, only one had a significant relationship with final exam score: studying with classmates was positively related to exam performance ($p = 0.089$).

As in most prior studies, self-reported ACT scores were significantly related to final exam performance ($p<.001$). In contrast to the results reported in some prior studies, the amount of time spent working was significantly ($p = 0.002$) and negatively related to final exam performance and more than offset the positive impact of ACT scores (see Table 5). In fact, the difference in test scores would represent in our grading scale a full letter grade change, e.g., a score of 93 or better corresponds to an "A" while a grade of 86 corresponds to a "B". Perhaps it is commonsense, but those of us who teach in urban schools with large percentages of commuting students will appreciate that students perhaps tired from work or studying while commuting to or on their jobs are less engaged in class and, while striving to keep up with their peers, do worse. We surmise that is not because they care less, but because they have less time to concentrate on school. It also seems likely that students working essentially full-time will be less able to spend time studying with classmates and be more likely to cram for exams.

Table 5

Hours worked	Final Exam Mean Score
0-29	81.7*
30 plus	74.9
*Significantly different at p≤0.05	

We argue that it is important for educators to communicate the negative effect of an inordinate amount of time working may have on their learning goals. For many of our students, deciding whether or not to work more hours than may seem advisable may not be an easy choice; however, students must be made aware that the short-term benefits of working extra hours may be more than offset by the loss of other long-term opportunities.

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Integrating a Web-Based Discussion Forum and Student Peer Feedback into a High-Enrollment IS Class: Expectations and Outcomes

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ABSTRACT

This paper presents results from using an asynchronous Web-based discussion forum coupled with an integrated student peer rating system as one component of an introductory Information Systems (IS) course with high enrollment (e.g. a class with over 100 students). There are two major issues with the typical introductory IS course: it covers too many topics, and it is difficult to engage students in active learning in a classroom environment due to large class sizes. To address these issues, an open source discussion forum was modified and used for topical discussion outside of the classroom. Students were allowed to participate in a discussion about topics of their choice and were encouraged to rate their peers' contribution in forum. Overall, students evaluated the online forum discussion positively and provided suggestions for improvement.

INTRODUCTION

Using information systems (IS) is a pervasive organization phenomenon; it is hard to imagine that any organization could survive in today's business environment without support from some type of information system. A basic understanding of IS, therefore, is usually a requirement for undergraduate business students. In a typical undergraduate business program, students are first exposed to IS in an introductory course. As Bakke and his colleagues (Bakke, et al, 2007) point out, this introductory course is often too large, covers "a vast array of subjects", focuses "too broadly on most topics", enrolls students with "a variety of backgrounds and interests", and is often perceived as "impersonal". Moreover, students "often enroll in these courses primarily to satisfy graduation requirements rather than to satisfy an inherent interest in the subject matter. Hence, neither students nor professors are satisfied with the learning experience and, more importantly, graduates from business schools do not master fundamental IS skills before entering the professional world."

In this paper, we illustrate how an online forum discussion can be used to improve students' learning process and learning outcomes in such a large introductory course. An online discussion forum (or simply a forum) is a Web-based application that provides the ability to host a persistent threaded discussion. Three objectives provide guidance for designing an online forum discussion: 1) to make the learning experience enjoyable, 2) to increase students' interest in IS topics, and 3) to increase students' understanding of IS topics. In sum, the purpose of the online forum discussion is to increase students' learning in an enjoyable way.

The remainder of the paper is organized as follows. In section 2, we explain issues with the typical introductory IS course and discuss two pedagogical principles guiding the design of the online forum that we used. In section 3, we describe how the forum was implemented in a high-enrollment class over three successive semesters. In section 4, we evaluate the effectiveness of using the online forum and, in section 5, we discuss implications of online forum use.

DESIGN ONLINE FORUM DISCUSSION

Issues with Introductory IS Courses

While the content covered in an introductory IS course varies from university to university, the primary goal of the course is more or less the same: students need to obtain a basic understanding of the technological, managerial, and societal aspect of IS. In other words, students need to understand how IS works, how IS can be used to facilitate business processes and management decision making, and what societal issues arise from use of an IS. To accomplish this goal, a variety of topics are typically covered: different types of information systems used by organizations, database design and management, computer networking, wireless technology, the system development life cycle, and IS project budgeting and management. The underlying problem of covering so many topics in a single course is that instructors are not able to offer in-depth discussion for any of the topics. Moreover, students who have different background knowledge or different interests in the various IS topics may prefer to delve deeper into some topics while simply ignoring others. It is unlikely that in-class lectures and discussions, even when supplemented with first-rate text-books, will be able to meet all needs of all students.

Another issue with the introductory IS class is that it is often too large, sometimes enrolling more than 100 students in a section. In such a large class, meaningful student engagement is difficult to accomplish. Typically, a handful of students will regularly participate in class discussions, but many students are simply unprepared, passive, or silent (Felder, 1997; Bhagyavati et al., 2005). To address both content and size issues, we provided our students with an online discussion forum where they were encouraged to explore topics by posting links to recent IS-related articles found on the Web and by discussing the articles posted.

Two Pedagogical Principles Guiding Our Design of Online Forum

Two pedagogical principles guided our use of an online forum for the introductory IS course. The first principle was to engage students in active learning. As pointed out by Bakke and his colleagues (Bakke, et. al, 2007)

> There is consensus among pedagogical researchers that active learning techniques have a positive impact on the quality of students' learning (Astin, 1984; Association of American Colleges, 1986; Miller, 1988; Bonwell and Eison, 1991; House, 2002; Kvam, 2002; McClanahan and MCClanahan, 2002; Udovic et al., 2002). Active learning theory suggests that students become an integral part of learning process by studying ideas, solving problems, and applying what they learn.

Since many students are not bold enough to speak up in a large section class, discussion often resembles a private conversation between the instructor and a few of the most outgoing students rather than a broader dialog. Some students may be afraid of being embarrassed if they do not answer questions correctly or if they ask a "stupid" question. As a result, students often become passive listeners rather than active participants in the class. Given the difficulty in providing a classroom environment that supports active learning, we chose to create an opportunity outside of the classroom that would encourages students to actively seek information about course-related topics of interest.

The second principle guiding our forum is to allow students to control some aspects of the learning process. In addition to choosing topics of interests for the online discussion, they can also choose the time and place to participate in the discussion. Researchers have shown that people are more motivated to do or complete a task when they have choices regarding the task (Bakke, et al, 2007, Malone, 1980; Lepper and Malone, 1987; Liao and Tai, 2006) or have an opportunity to regulate their learning process (Csikszentmihalyi, 2000; Lin and Hsieh, 2001; Zimbardo, 2005).

USING ONLINE FORUM DISCUSSION TO FACILITATING LEARNING

Gill (2006) listed several ways to use an online forum to facilitate students' learning: A forum can be used to support assignments so that students can share ideas. A forum can engage students in case discussion or debate. A forum can also be used as a tool for workflow control, archival storage, and monitoring, so that multiple classes over

several semesters can accomplish a large project. In our case, an online forum was primarily used for topical discussion.

The potential for forum discussions to enhance student participation and learner outcomes has previously been established (Anderson and Elloumi, 2004, Corich et al., 2004). However, providing students with pertinent feedback and assigning a graded component for student contributions remains problematic – especially for high-enrollment classes (> 100 students) in which forum participation accounts for a significant portion of the overall grade in the course. As class size increases and instructional resources remain fixed, the quality of feedback that students receive (if they receive any at all) inevitably deteriorates to the point of being superficial (Rust, 2001). To overcome these problems, the existing ratings feature in an open source forum product (JForum - www.jforum.net) was modified to serve as a peer assessment mechanism suited for our purposes. Although student peer assessment may at times be biased or more lenient than instructor feedback, it can potentially provide timelier and more voluminous feedback than a single instructor can muster - advantages that outweigh a certain degree of irregular quality (Nilson, 2002-2003). In addition, students' accumulated peer ratings were used as one factor in determining forum and course participation scores.

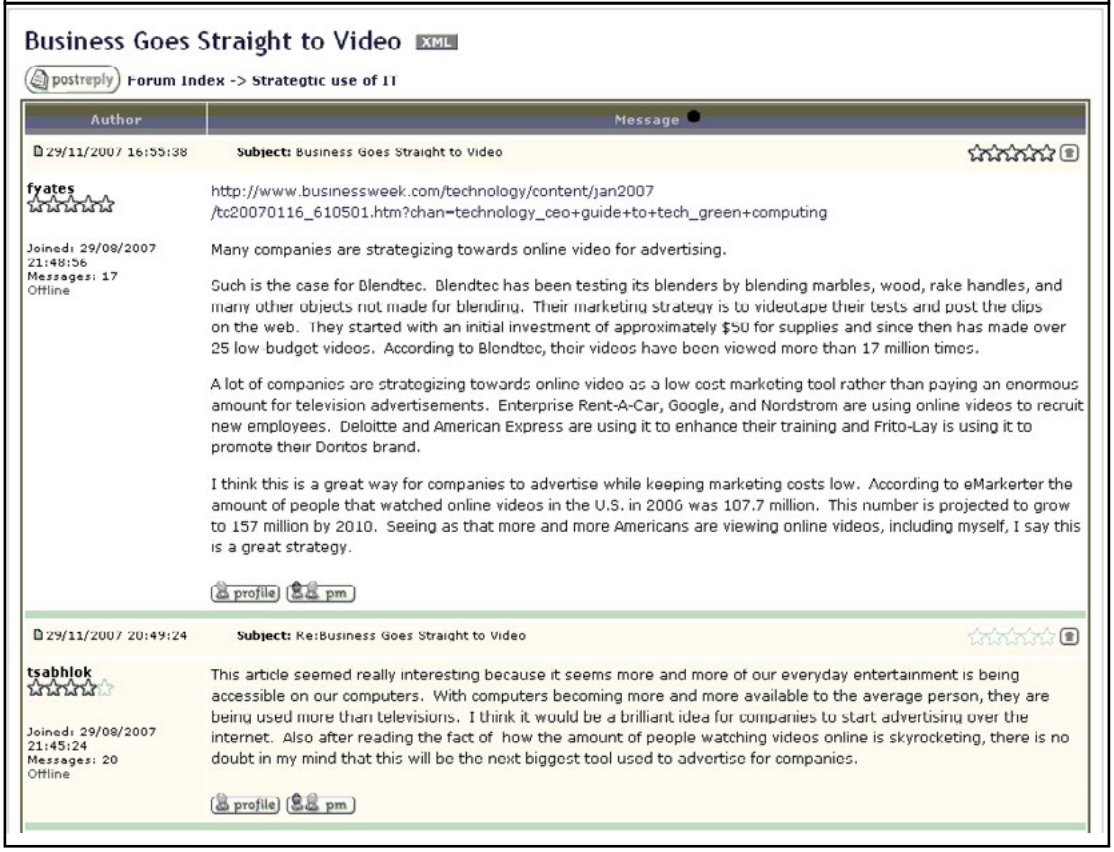
We used the online forum for a large IS introductory class in the fall 2006, spring 2007, fall 2007, and spring 2008 semesters. In each semester, two sections were offered, one in a lecture hall with a capacity of 180 seats and the other in a lecture room seating 140 students. The implementation and usage of the online forum varied slightly from semester to semester as we imposed additional posting constraints in the second academic year and added a new features allowing students' to view their "real-time" accumulated forum participation points online. Initially, there were two major posting areas on our forum: 1) "Lab", where students were to post questions about lab sessions held over the course of the semester, and 2) "IS Topics", which were grouped into various subject areas such as hardware, software, IT and the environment, and IT and ethics. In practice, students seldom used the forum to discuss their lab assignments. As the lab discussion component was not a high priority for pedagogical purposes, we will therefore focus our analysis on students' forum use for dialogue on the various IS topics.

In the first week of class in the Fall 2006 semester, students were tasked with locating 6 current and unique online articles (no more than 6 weeks old) and then initiating discussion threads in the forum by posting the URL of the article, a short synopsis, and, most importantly, a personal reflection concerning implications for individuals, organizations, or society at large. Students were also tasked with, over the course of the semester, reviewing and rating 18 of the articles (or threads) posted by their classmates. Peer ratings were indicated by a simple one star to five star rating reflecting the degree to which the article and originator's review was found to be interesting or helpful. Figure 1 presents an example discussion thread with associated reviews/ratings. The forum used for this study in one course section during the spring of 2008 can viewed online at http://cisr.cob.csuchico.edu/JForum2008S01/.

For each discussion thread a student originated, the student earned 12 participation points. In addition, a student earned 4 points for each review/rating posted. If, on average, a discussion thread was peer rated at 3 stars, 2 additional points (14 pts. total) were rewarded to the originator. A thread which averaged 4 stars received an additional 5 points (17 pts. total) and a 5-star thread received 9 bonus points (21 pts. total). Factoring students' peer ratings into their overall scores for forum participation was viewed as a means to encourage interesting and non-trivial contributions. Students were allowed to post bonus threads or reviews not to exceed 150 percent of the minimum requirements. In total, it was possible for a student to earn 300 points (30%) of their overall course grade through forum participation. Previous research indicated that when used in an educational setting, forum participation needs to account for a significant portion of a student's overall grade or it will not be taken seriously. Percentages between 30% and 50% have been suggested (Bhagyavati et al., 2005).

Our early observation of students' forum use was disappointing to us in that some students only input very brief comments about articles posted by others. Responses such as "great" or "sounds interesting" were not uncommon. To encourage students to input more detailed commentary, we imposed an additional requirement mid-semester insisting that students provide postings of no

FIGURE 1
SAMPLE FORUM POSTING

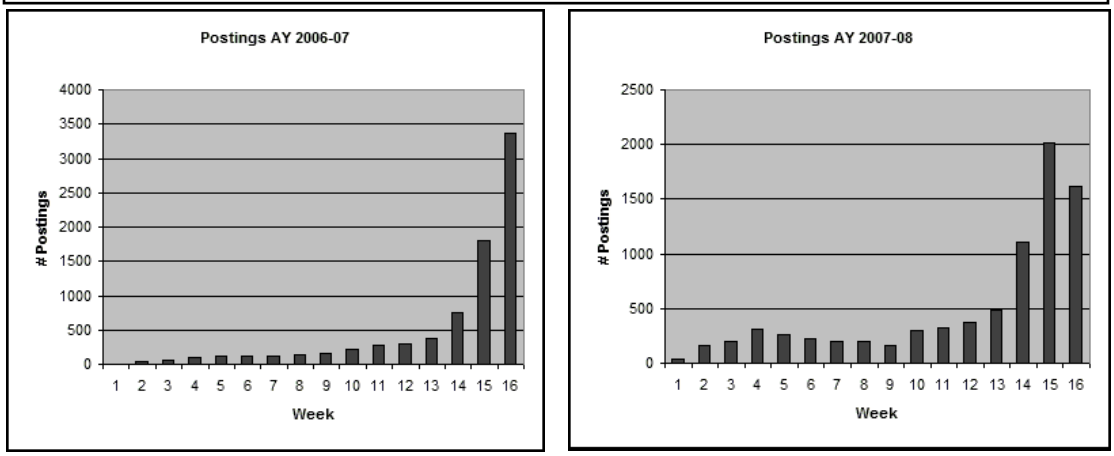


fewer than 50 words when starting a new thread, and no fewer than 25 words when making a follow-on posting to an existing thread. Subsequent observation indicated that this requirement not only reduced the number of trivial postings but also reinforced the requirement that students support their opinions by citing additional facts or relating personal experiences. In subsequent semesters, we imposed these word length requirements from the outset.

For the 2006-07 classes, students needed to manually compute the points accumulated from their various postings or else wait until the instructor posted points after running a batch calculation process. In other words, even though students could calculate points for themselves, they did not have immediate access to a single score showing their total forum participation points. For the academic year 07-08 classes, the forum software was modified to calculate average ratings and point totals on an on-demand basis. This added feature was well received by students.

The forum assignment was due to be completed anytime before final exams. Therefore, students could choose when to do the assignment - i.e. which articles to post and which threaded discussions to respond to. This allowed students to control their learning experience in terms of time frame and content. It also encouraged students to engage in active learning: they had to explore the Web to find articles in which they were interested and make a judgment about whether or not the articles might be of interest to or generate higher ratings from their classmates. They would need to actively think about the contents of the articles since they had to summarize them and comments about them. Also, they had to read others' posting and respond to those. The unhurried, interactive atmosphere provided by the forum was expected to nurture a positive learning environment and, ideally, increase students' interest in the class and their understanding of IS topics.

Figure 2
Postings by Week



EVALUATE EFFECTIVENESS OF ONLINE FORUM

There can be both objective and subjective measures of the effectiveness of using an online forum. One objective measure is the number of participant logins. According to Gill (2006), if forum participation is voluntary, then usage or activity statistics become important indicators of success. In our study, forum participation was a requirement in all semesters. Moreover, Jforum, the particular forum software that we implemented, was not configured to track individual login events. Nonetheless, charting the number of forum postings created on a week-by-week basis does provide an indication of the level of student engagement. The two summary charts presented below depict the pattern of posting frequency over the 06-07 and 07-08 academic years.

From the 06-07 posting chart, it is apparent that many students waited until very late in the semester to complete the forum assignment. In mid-semester, students were posting at a rate of only one entry every two weeks. In the final week of the semester, however, there were 3375 postings – an average of 6 postings per student. We had hoped that our students would use the forum more consistently over the course of the semester, but, in fact, more than half of all postings were accomplished in the final two weeks of the semester. The observed frenzy of last-minute postings was disconcerting. In an attempt to counteract what we viewed as wholesale procrastination, we programmed a change to the forum software to disallow posting of more than half of the overall requirements (3 articles and 9 reviews) in any one-week period. The effect of the additional constraint can be seen in the chart of AY 07-08 postings in which the number of postings in the final week of class is actually less than the prior week's tally. Even so, forum activity was still heavily weighted towards the last 3 weeks of the semester. In order for students to have a better opportunity to engage in thoughtful discussions over the course of the semester, we believe that an even more finely grained posting schedule should be instituted and enforced by the software.

In addition to objective measures of forum success, Gill (2006) suggested capturing subjective measures and points out that measures of a technology's impact on educational outcomes such as performance and satisfaction are important for situations in which participation is mandatory. Gill (2006) further reports that a detailed analysis of individual student contributions is sometimes used to measure performance (e.g., Hazari, 2004; Gill, 2005). Characteristics such as length, breadth, depth and quality can be used to assess overall discussion performance (Benbunan-Fich, 2002). Although we did not perform detailed textual analysis of students' postings, we did gather self-report data from students in the 12th week of the spring 2008 semester using an online survey instrument. The survey consisted primarily of 7-point Likert-style questions but also included one open-ended question for student comments. In most cases, we used multiple questions to assess student perceptions of forum characteristics. Although participation in the

survey was voluntary, students were encouraged to participate with an incentive of 25 class participation points, a 2.5% bonus. Students were required to have earned at least 50 points in the online forum before becoming eligible to complete the survey and the 50-point rule was enforced by software. Across both sections of the course, 188 out of 287 students total completed the questionnaire – a participation rate of 65.5%.

Our survey results indicated that students put a reasonable amount of effort into online forum discussion (Mean = 5.1) even though they did not report being particularly motivated to participate (Mean = 4.60). Generally, students rated online discussion quality quite positively along the dimensions of discussion breadth (Mean = 5.27), discussion depth (Mean = 5.03), and overall discussion quality (Mean = 5.28).

Briggs, et al. (2003) suggested that subjective measures of user satisfaction are appropriate for cases involving group interaction. Our survey used two survey questions to estimate user satisfaction. Students reported being moderately satisfied with both the way the forum discussion was used (Mean = 5.19) and with how much they learned from the online discussion (Mean = 4.98).

According to Gill (2006), the final category of effectiveness that should be considered is the degree to which a group discussion meets its design objectives. There were three objectives for our online forum: 1) Make the learning experience enjoyable, 2) increase students' interest in IS topics, and 3) increase students' understanding of IS. We used three questions to estimate attainment of objective of our first objective: 1) I enjoyed participating in the online forum discussion (Mean = 4.82), 2) the online forum discussion was an enjoyable way to learn about IS topics (Mean = 5.09), and 3) I had fun reading the articles and comments posted on the online forum (Mean = 5.07). Overall, our students agreed to a moderate degree that online forum discussion was enjoyable.

For objective #2, we used two questions: 1) In general, the online forum discussion increased my interest in IS topics (Mean = 4.76), and 2) as a result of participating in the online forum discussion, I become more interested in IS topics (Mean = 4.60). Overall, students reported only a slight increase in interest in IS topics resulting from their forum use.

For objective #3 we used four questions to assess what students learned from the discussion: 1) Online forum discussion helps me to know the latest trends in computing technology, 2) Online forum discussion increased my understanding of technological aspect of IS (e.g., how a particular technology works), 3) Online forum discussion increased my understanding of managerial aspect of IS (e.g., how can a technology facilitate business processes in organizations), and 4) Online forum discussion increased my understanding of societal impact of IS (e.g., legal or ethical issues caused by IS). Student responses indicated that the online forum helped them learn the latest trends (Mean = 5.31) and societal impacts of computing technology (Mean = 5.10) more than technological (Mean = 4.82) and managerial aspect of IS (Mean = 4.81). Students also moderately agreed with the statement "I obtained useful information that I would otherwise not able to obtain if not from online forum discussion" (Mean = 4.94).

We conducted a correlation test between students' overall evaluation of online forum quality and the number of points earned to date (R^2=0.15, p=0.022) and a correlation test between points earned and learning outcome satisfaction (R^2=0.18, p=0.027). The significance of the correlations indicate that students who had used the online forum discussion to a greater degree and had earned more points for doing so were more likely to report a favorable view of the online forum experience.

To get a more in-depth understanding of students' feedback, we added the following question at the end of the survey "Please write any additional comments". Of the 88 students who provided additional comments, 3 wrote unrelated comments, and only 7 expressed negative opinions regarding the forum assignment. The remaining 78 comments provided either neutral or positive overall evaluations. A summary of the positive remarks were that the online forum was easy to use, it was a fun and informative way to learn about IS, it helped students learn something that they would not have explored on their own, and it was a good way to communicate and interact with other students in such a large class. The following are examples of comments made by our students.

> Forum helped all of the students engage in IT discussions

> I found the forum very interesting. I really liked the responses I got back on some of my articles and it was nice to get other people's opinions on certain topics. I think that the forum was user-friendly and informative.

> I enjoyed using the forum [for the class]. It enabled me to interact with my classmates, learn interesting and new facts, and learn more about what is going on in the business world.

> It is a good idea because it forces you to learn something that you probably wouldn't have if it weren't for the forum.

> The Forum was a good way to gain information about new issues in the technology market. Instead of doing research yourself, it was a collaborative effort by the entire class and a whole cornucopia of different topics were brought up and you could find something interesting with relative little research.

> I thought the forums were very informative. I really did learn a lot about current computer related issues that I would have normally never have learned. I think the forums were the best part of [the class].

Students also made suggestions regarding ways to improve the online forum discussion. A number of students observed that many of their classmates waited until the last minute to participate in the online discussion and they suggested that there should be a means to spread the posting activity across the entire semester rather than have it cluster at the very end. Students also suggested that there should be improved quality control to ensure that posting are more relevant to the assigned topics of discussion. Students further suggested that scoring their participation in the forum should be more explicit and straightforward and that there should be fewer postings required of each student. Among the comments we received regarding students' posting habits were the following:

> "I like the [forum] requirement. Maybe requiring a certain # of postings by the midterm might help spread out the postings a little more.

> I think it would be more effective if the requirements were spread out more. for example having a post due once a month rather than four at the end.

> I did enjoy the forum, but thought there were almost too many postings required. I think that each student should have to post 2-3 articles, and maybe 8-10 replies.

> The point system was confusing.

While the majority of the written comments were quite positive, we wondered why the students' overall rating was lukewarm. There might be several explanations: First, those students most likely to take time to type in a specific comment might have been those who had the most positive overall experience using the forum, whereas students who had negative overall perceptions of forum use may have chosen not to comment. Second, many students simply had little interest in the class or in the various IS topics. They took the class simply to fulfill a business school graduation requirement and not out of any inherent interest. As a result, they may have cared little about the instructional methods or how much they actually learned. The following three comments provide examples:

> I understand the need for a forum and, for a class like this, it is an appropriate addition. But I did not enjoy being required to post topics, especially when, even though I have respect for all computer topics, have very little interest in the topics.

> The forum is a cool feature. But it isn't something that kept me interested in IT. This can be due to my already existing lack of interest in IT.

> I found the forum very challenging because the information learned in this class does not interest me very much. I know that it is very useful, and you did a great job with the class! I think the forum made me think about IS in a more critical way then I normally would have.

In regards to the peer rating component of the forum assignment, only four students expressed negative comments explicitly about this feature. One student suggested that the grading should

be based entirely on the teacher's evaluation and not on peer evaluations because the popularity factor forced students to choose articles that their college students peers would find inherently interesting. For example, postings regarding Apple's iPhones and other mobile devices were very popular as were postings regarding sustainability or green computing.

In sum, while students' overall evaluation of the online forum discussion was positive, there might not be too much room for instructors to increase student interests in IS topics where that interest is lacking before students enter the classroom.

DISCUSSION

A typical IS introductory course usually faces two challenges. One challenge is that there are too many topics to allow in-depth discussion of any particular topic. The other challenge is that class sizes are often too large to engage students in meaningful class participation. To address both challenges, we used a Web-based discussion forum complemented with an integrated peer-rating system for discussion of IS topics outside of the classroom. Based on statistics regarding students' participation and students' survey results, the forum was largely a success. First, the forum involved students in discussion to a greater extent than classroom discussion did. For a typical high-enrollment class, classroom participation is limited to a small cadre of students, whereas our online forum discussion involved nearly all students in discussion of multiple topics. Second, according to our survey, students agreed to a moderate degree that the online forum discussion was enjoyable and that their interests in and learning about IS topics had been increased due to involvement in the forum discussion. The peer rating system was also well accepted by most students. In sum, the online forum did allow students to engage in a wider exploration of topics of interests, and many students encountered information they otherwise might not have investigated.

Although the forum use appears to have been moderately successful, the following limitations should be borne in mind when evaluating our results. First, we did not record the number of logins for individual students. Doing so may have given us more insight into the degree of students' engagement with the forum. We were, however, able to use timestamp data to track the rate at which postings were made over the course of the semester and we charted this on a week-by-week basis. Second, we did not conduct content analysis of students' postings in order to assess the depth, breadth, and overall quality of forum discussion. Instead of having both objective and subjective measures, we used students' self-report data to gauge discussion quality.

Overall, students' rating of the online forum discussion was lukewarm, and not as good as we had anticipated. We speculate that the reasons behind the lukewarm reception may include: 1) our students in general lack any inherent interests in IS topics before enrolling in the class and, as a result, it was difficult to motivate them to engage more deeply in the learning process; 2) the content of the forum discussion was allowed to diverge into topics related to lecture content but not explicitly mentioned or covered in class lectures. Therefore, many students may not understand all of the concepts needed for discussion of a particular IS-related topic brought up in the forum; and 3) many students postponed their engagement in the online discussions until the final weeks of class. This phenomenon resulted in a foreshortened span of time for many discussions and precluded students' having the in-depth learning experience we had expected. As for issue #1, students' lack of interest, in future studies we believe it will be informative to assess students' interest in IS topics and IS classes both at the beginning of the semester and then again toward the end of the semester. This would allow for an estimate of the degree to which the online forum in particular and the IS course in general served to increase students' interests in IS topics. In regards to issues #2 and #3, we anticipate that requiring a weekly posting on a topic covered either in lecture or in the assigned readings might serve to supply additional motivation and to keep discussion focused on topics upon which all students should be able to converse. In addition, as instructors, we might also post some "seed" articles for a particular week for students to read and comment upon. By doing so, we have a ready mechanism to make available additional ad-hoc reading material that complements our basic course content. In addition, we have a venue by which to influence the course of "outside" discussion.

Despite the challenges discussed above, we believe that online forum software can be used

(and also improved or customized) by other instructors in order to increase student learning outcomes in an IS introductory course. We hope that sharing our experiences will give other instructors (and developers) insights into the use of, and possible enhancements to the design of, online forum systems.

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Appendix A

Objective 1 (make learning experience more enjoyable): question 5, 6, and 7

Objective 2 (increase students' interest in IS topics): question 8 and 9.

Objective 3 (increase students' understanding of IS topics): question10, 11, 12, 13.

Usefulness of online forum: 14.

Perceived motivation, 18

Perceived effort: 16, 17, 18, and 19

Discussion quality: 20, 21, and 22.

Peer rating feature: 23

Peer rating quality: 24 and 25

Satisfaction: 26 and 27

Survey of Online Forum Discussion							
1. How old are you? _____							
2. Sex: Male _____ Female _____							
3. I am in Class _____							
4. How many years of full-time work experience do you have? _____							
	1 = Strongly Disagree			4=Neutral			7=Strongly Agree
5. I enjoyed participating in the online forum discussion.	1	2	3	4	5	6	7
6. Online forum discussion was an enjoyable way to learn about IS topics.	1	2	3	4	5	6	7
7. I had fun reading the articles and comments posted on the online forum.	1	2	3	4	5	6	7
8. In general, online forum discussion increased my interest in IS topics.	1	2	3	4	5	6	7
9. As a result of participating online forum discussion, I become more interested in IS topics.	1	2	3	4	5	6	7
10. Online forum discussion helps me to know the latest trend of computing technology.	1	2	3	4	5	6	7
11. Online forum discussion increased my understanding of technological aspect of IS (e.g., how a particular technology works)	1	2	3	4	5	6	7
12. Online forum discussion increased my understanding of managerial aspect of IS (e.g., how can a technology facilitate business processes in organizations).	1	2	3	4	5	6	7
13. Online forum discussion increased my understanding of societal impact of IS (e.g., legal or ethical issues caused by IS).	1	2	3	4	5	6	7
14. I obtained useful information that I will otherwise not able to obtain if not from online forum discussion.	1	2	3	4	5	6	7
15. I was motivated to participate in online forum discussion.	1	2	3	4	5	6	7
16. I made serious effort to participate online forum discussion.	1	2	3	4	5	6	7
17. Before I wrote comments about a posted article, I usually read the original article in addition to the synopsis posted by my class mates.	1	2	3	4	5	6	7
18. Before I wrote comments about a posted article, I usually just read the synopsis and not the original article.	1	2	3	4	5	6	7
19. I always carefully evaluate the quality or usefulness of the article before I post it on online forum.	1	2	3	4	5	6	7
20. The breadth of online forum discussion of IS topics is good.	1	2	3	4	5	6	7
21. The depth of online forum discussion of IS topics is good.	1	2	3	4	5	6	7
22. Overall, the quality of online forum discussion of IS topics is good.	1	2	3	4	5	6	7
23. I like the feature of peer rating of the online forum discussion.	1	2	3	4	5	6	7
24. The ratings I have received for my postings in the forum seem reasonable to me.	1	2	3	4	5	6	7
25. I am thoughtful and conscientious when I review and rate posting from other students.	1	2	3	4	5	6	7
26. I am satisfied with the way the forum discussion was used in this class.	1	2	3	4	5	6	7
27. I am satisfied with how much I learned from online forum discussion.	1	2	3	4	5	6	7
28. Please write any additional comments in the following box.							

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Undergraduate Entrepreneurial Finance Course: Some Curriculum and Pedagogical Perspectives

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ABSTRACT

Using online survey, we document the opinions of finance professors as to what should be the core content of undergraduate entrepreneurial finance course and the approach to be taken to teach this course. On the core content of the course, the top five topics preferred by the respondents were: Identifying business opportunities and examining their feasibility, forecasting revenues and expenses for early stage ventures, cash budget and projecting financial statements using EXCEL, understanding financial statements, and estimating external funds needed and sustainable growth rate. As to the approach to be taken in teaching this course, the respondents preferred taking a balanced approach, that is, emphasis on basic accounting and finance skills, such as financial forecast, cash budget and other financial management tools, supplemented with cases to run a start-up. The findings do not differ between faculty who are teaching the course and those who do not teach the course.

INTRODUCTION

The demand for entrepreneurship education is growing rapidly in the U.S. A growing number of universities and business schools in the U.S are offering entrepreneurship education opportunities. Nieland (2001) reported that many colleges, such as Babson College, offered entrepreneurship undergraduate majors or concentration in MBA programs. Entrepreneurial finance is regarded as an important component for new start-ups due to their funding requirements and an entrepreneurial finance course, naturally, is one of the core courses in such a major or concentration.

A cursory look at the titles and content of entrepreneurial finance course offered in a few business schools and textbooks reveal a wide spectrum of titles, such as *Entrepreneurial Finance*, *Venture Capital and Initial Public Offerings,* and *Entrepreneurial Investments*, among others. Some of these titles emphasize different aspects of entrepreneurial finance, which may or may not be in line with the reality. For instance, there is less than one percent of new ventures have access to IPOs and hence, a IPO-focused entrepreneurial finance course, perhaps, overly focuses on a specific aspect of entrepreneurial finance. Overall, there is anecdotal evidence to suggest that finance scholars, in the context of an undergraduate entrepreneurial finance curriculum, have a lack of general agreement about: (1) what core topics should be taught in entrepreneurial finance? (2) what should be the core content of entrepreneurial finance? (3) How is it different from a small business finance course and a basic corporate finance course? To date, there is no definitive answers to these questions.

Until recently, business schools did not offer any entrepreneurial finance courses (only small business finance was offered) and no textbooks were written on the subject. Even today, there are only a handful of textbooks on entrepreneurial finance; clearly this discipline is still evolving with no consensus among finance professors on the coverage of topics. At one extreme, we come across an entire course devoted to discussing the venture capital cycle: investment - monitoring and advising – divestment, going public (process of IPO). On the other extreme, there are courses covering basic corporate finance topics supplemented with cases and spread sheet applications.

Root, Rozycki, Senteza, and Suh (2007), in a general survey of finance curriculum, briefly identified entrepreneurial finance as one of the possible courses within a financial management group of finance courses. Root et al, however, provided no specifics regarding the curriculum issue or current status of an entrepreneurial finance course. Few studies offer insights or any pedagogical perspectives on an entrepreneurial finance course. To date, we do not know much about the development of an entrepreneurial finance curriculum.

The objective of this study is two folds. First, we provide a first exploratory survey related to the curriculum of an undergraduate entrepreneurial finance course. We took survey of finance faculty only because entrepreneurial finance is generally taught by finance professors and housed in the finance department. The important curriculum issues for teaching an entrepreneurial finance course are presented. Second, given an entrepreneurial finance course is gaining acceptance among colleges, we examine if a particular pedagogical approach to teach such a course is recommended by finance faculty. Our findings would help colleges and faculty in designing and executing an entrepreneurial finance course.

LITERATURE REVIEW

After extensive literature review, we found that whereas academic research on entrepreneurial finance topics (e.g. venture capital, contracting issues, asymmetry of information etc) is extensive, there is paucity on paper written on entrepreneurial finance curriculum and pedagogical issues. There seems to be a disconnection between what we teach our students and the academic research on entrepreneurial finance. We will briefly review the existing literature on both of these aspects.

Only a few studies on an entrepreneurial finance course have been published so far but they do not discuss in details issues related to pedagogy of an entrepreneurial finance course. Nieland (2001) reported that many colleges, such as Babson College, offered entrepreneurship undergraduate majors or concentration in MBA program. Anderson, Envick, and Roth (2003) conduct a survey asking entrepreneurs and advisors regarding their "wish list" of financial education topics. Discussions were made on the difference between entrepreneurs and financial advisors. Root, Rozycki, Senteza, and Suh (2007), in their survey study of finance curriculum identified entrepreneurial finance as one of the possible courses within a financial management group of finance courses. Their study, however, does not deal with the curriculum issue or current status of an entrepreneurial finance course.

On the academic research papers on entrepreneurial finance topics we present the review of a few papers. Brophy and Shulman (1992) consider that the connection point between finance and entrepreneurship is the venture capital area. They suggest that a few finance topics, such as valuation, portfolio theory capital asset pricing model, and options may provide a useful framework to study entrepreneurship. Further, he also suggests that capital structure theory and associated issues such as leverage, taxes, and bankruptcy, agency costs and information asymmetries may also provide help in understanding entrepreneurship.

Saint-Pierre and Mathieu (2003) present a detailed report regarding the body of work done on venture capital: working of the venture capital market, financing decisions, measuring risk, and contractual aspects. They also mention that there is a general lack of research about new venture's financing requirements depending on the type of business, stage of development, and riskiness, financing alternatives and development potential.

Dennis (2004), in his survey of the published articles in the entrepreneurial finance literature, contends that the literature have focused on the following areas: alternative sources of capital, financial contracting issues, public policy, and the dynamics of private equity returns. He also identifies several areas where further research is needed.

Paré, Rédis, and Sahut (2009) discuss that the bulk of the work in the past has been on venture capital but now researchers have widened their scope of research. They suggest that the future research for entrepreneurial research is moving towards the financing needs of new firms, sources of alternative financing, contracts between creator(s) and financier(s), the role of the legal and institutional environment, and innovating firms.

Furthermore, there are several emerging journals and conference devoted to entrepreneurial finance such as *Venture Capital Journal* (inception in 1999), *The Journal of Entrepreneurial*

Finance and Business Ventures (inception in 2000), or the annual conference of The Academy of Entrepreneurial Finances (inception in 1989) testify to the growing body of research work in this field. Nonetheless, as mentioned earlier, there is paucity of work devoted to pedagogical and curriculum issues related to entrepreneurial finance.

DATA AND SURVEY DESIGN

We sent out about 2,500 surveys via email to finance faculty in Fall 2010. Two weeks after the initial email, we sent a follow-up email to encourage the respondents to respond. The survey has four parts: profile of respondents, profile of the schools, basic questions related to an entrepreneurial finance course, and curriculum / pedagogy issues related to the course. To conserve space, we present the survey statements along with the Results and Discussions below. After the first email, we sent out a follow-up email to encourage the potential respondents to fill out the survey. We received 159 workable responses.

RESULTS AND DISCUSSIONS

The general profile of the respondents is in Table 1. Among the respondents, there are 76, 40, 32, and 12 of them are full professors, associate professors, assistant professors, and others (e.g., lecturers), respectively. The majority of them is tenured (77%), male (83%), and with doctoral degrees (95%). Among the specialization with finance, there are 35 (22%) of the respondents reporting entrepreneurial finance as one of their instructional areas.

The results of the respondents' school profile are reported in Table 2. The majority of the schools are public (66%) and AACSB-accredited (76%). In terms of student population in respondents' business schools, the results are quite evenly distributed. Small (less than 1,000 students) to large (more than 4,000 students) are almost the same

Table 1
A general profile of respondents

Question 1: What is your Rank?	**Response**	**Percentage**
Full professor	76	48%
Associate professor	40	25%
Assistant professor	32	20%
Others (instructors, executive-in-residence...etc)	12	8%
Question 2: Are you tenured?		
Yes	120	77%
No	35	23%
Question 3: What is your gender?		
Male	131	83%
Female	27	17%
Question 4: What is your highest academic degree?		
Ph.D./DBA	152	95%
MBA/MS/MA	6	4%
BS/BA	2	1%
Question 5: What are your areas of instruction? (can choose more than one; percentage is based on 157 respondents)		
Corporate	118	75%
Financial Institutions	44	28%
Investment	76	48%
International	37	23%
Entrepreneurial finance	35	22%

with around 20% of the respondents. For the size of the finance department/group, only 18% of them have 16 or more finance faculty. The respondents' departments are primarily small or medium scale. In terms of degree offering, there are only 29% of the schools conferring doctoral degree in finance. The profiles shown in Tables 1 and 2 suggest the majority of respondents are male, tenured, and doctoral qualified faculty members who teach a public AACSB-accredited school. In terms of business school and finance department size, the respondents come from a variety of business schools and small or medium finance departments.

Table 3 reports the results of the general perspectives related to an entrepreneurial finance course. Among the respondents, 79 (51%) of them report either "don't know" or "not offered" an entrepreneurial finance course. For the remaining 49% of respondents, the entrepreneurial finance course is offered as a finance elective (31%), a business elective (19%), or a core requirement in the entrepreneurship major (19%). Among the respondents, there are 33 (21%) of them teaching an entrepreneurial finance course, which is consistent with the 35 respondents reporting their entrepreneurial finance instructional specialization in Table 1. For text adoption, it is interest-

Table 2
A general profile of the respondents' schools

Question 6: **Is your college/university a public or private institution?**	**Response**	**Percentage**
Public	105	66%
Private	54	34%
Question 7: **Is your school AACSB accredited?**		
Yes	120	76%
No	37	24%
Question 8: **What is the size of the business school (number of students)**		
1-1,000	31	20%
1,001-2,000	44	28%
2,001-3,000	24	15%
3,001-4,000	26	16%
More than 4,000	33	21%
Question 9: **What is the size of the finance department / group (number of faculty)?**		
1-5	41	26%
6-10	51	32%
11-15	38	24%
16-20	14	9%
More than 20	14	9%
Question 10: **Which of the following degrees is/are offered by the College of Business at your institution?** **(please check all those that apply; percentage is based on 156 respondents)**		
Bachelor of Business Administration, major in Finance	98	62%
Bachelor of Science, major in Finance	57	36%
Master of Business Administration, general	117	75%
Master of Business Administration, major/concentration in Finance	88	56%
Master of Science, major in Finance	49	31%
Doctorate, major in Finance	45	29%

ing to know that there is no single market-share dominant book though Leach and Melicher has the highest selection of 11 respondents. From the results in Table 3, it is also interesting to note that, as an independent course, entrepreneurial finance has not yet fully popular among business schools as 46% of the respondents reporting their schools do not offer such a course. In addition, the text selection is still wide open.

The curriculum and pedagogy results are presented in Table 4. We ask the respondents about the topics that should be covered in an entrepreneurial finance course. With a scale of 1 to 5 (with a 5 being the very important), we report the mode in bold and the mean scores for all respondents in the column (9) of Question 14. Among the 28 listed topics, the most important five topics (using highest mean scores) are:

- Identifying business opportunities & examining their feasibility
- Forecasting revenues & expenses for early stage ventures
- Cash budget & projecting financial statements using EXCEL
- Understanding financial statements
- Estimating external funds needed & sustainable growth rate

On the other hand, the five least important topics (using the lowest mean scores) are:

- Financial contracting
- Information and Incentive problems in financial contracts
- Internal equity capital: Bootstrapping
- Overview of securities laws and intellectual property rights
- E-commerce

When we compare the five most important and least important topics in an entrepreneurial finance course, the faculty members report that the entrepreneurial idea (identifying business opportunities) and the basic accounting/financial management tools are most important. On the contrary, the abstract components of entrepreneurial financial topics (e.g., contracting and internal equity) of the course are considered least important. To explore further, we disentangle

Table 3
Entrepreneurial finance (basic)

Question 11: **In your school, entrepreneurial finance is offered as:**	**Response**	**Percentage**
Finance elective	49	31%
Business elective for all majors	30	19%
Core requirement for entrepreneurship majors	30	19%
Don't know	8	5%
Not offered	71	46%
Question 12: **Do you teach entrepreneurial finance?**		
Yes	33	21%
No	125	79%
Question 13: **What textbook do you use?**		
Don't know (I don't teach the course)	97	72%
Entrepreneurial Finance by Leach and Melicher	11	8%
Entrepreneurial Finance by Smith, J. and R. Smith	5	4%
Entrepreneurial Finance: A Casebook by Paul Gompers and William Sahlman	4	3%
Entrepreneurial Financial Management by Cornwall, Vang & Hartman	3	2%
Entrepreneurial Finance: Finance for Small Business by Adelman, Phillip, and Alan M. Marks	0	0%
Venture capital and the Finance of Innovation by Andrew Metrick Course Package	5	4%
Other		

Table 4 (Question 14)
Entrepreneurial finance (curriculum and pedagogy)

		Full sample							33 who currently teach EF	Not currently teach EF	
	Question 14. On a scale of 1(not important) to 5 (very important) please, rate the importance of the topics for inclusion in the undergraduate entrepreneurial finance course	**1**	**2**	**3**	**4**	**5**	**N**	**Mean (9)**	**Mean (10)**	**Mean (11)**	**t-test for (10) – (11)**
1	Introduction: Difference between entrepreneurial finance & corporate finance	14	13	36	42	45	150	3.61	3.72	3.58	0.57
2	Understanding financial statements	6	1	21	43	79	150	4.25	4.03	4.30	-1.14
3	Forms of business organizations & taxes	3	15	33	50	48	149	3.84	3.55	3.91	-1.46
4	Financial analysis	4	5	17	54	70	150	4.21	4.13	4.22	-0.44
5	Breakeven analysis	9	9	26	51	54	149	3.89	3.72	3.94	-0.96
6	Management of current assets	5	9	21	41	73	149	4.13	3.52	4.28	-2.97***
7	Management of current liabilities	6	9	22	39	72	148	4.09	3.52	4.24	-2.79***
8	Traditional capital budgeting techniques(NPV, IRR & Payback)	10	8	27	62	43	150	3.80	3.34	3.92	-2.24**
9	Identifying business opportunities & examining their feasibility	2	3	13	48	84	150	4.39	4.34	4.40	-0.31
10	Successful venture life cycle	4	5	28	53	59	149	4.06	4.13	4.03	0.47
11	Sequence of financing & their sources	4	2	20	56	66	148	4.20	4.22	4.20	0.09
12	Business models & elements of a business plan	5	6	19	52	67	149	4.14	4.22	4.11	0.52
13	Cash budget & projecting financial statements using EXCEL	4	8	14	36	87	149	4.30	4.19	4.33	-0.64
14	Forecasting revenues & expenses for early stage ventures	4	3	12	51	79	149	4.33	4.41	4.31	0.51
15	Estimating external funds needed & sustainable growth rate	4	3	17	57	68	149	4.22	4.28	4.20	0.44
16	Investment risks & return for early stage venture	4	7	26	59	53	149	4.01	4.18	3.97	1.32
17	Cost of debt & equity capital for early stage venture	3	11	36	50	49	149	3.88	3.97	3.86	0.53
18	Valuing early stage venture(Discounted cash flow)	6	11	25	53	52	147	3.91	4.03	3.87	0.74
19	Multi stage venture capital valuation methods	7	9	37	59	35	147	3.72	4.00	3.64	1.70
20	Overview of securities laws and intellectual property rights	12	26	56	43	11	148	3.10	3.13	3.09	0.18
21	Internal equity capital: Bootstrapping	8	24	43	53	19	147	3.35	3.65	3.27	1.84
22	Sources of external equity capital: Venture capital (in details, e.g., history, venture investing cycle, organizing new funds etc) & Business angels	6	6	28	51	58	149	4.00	4.06	3.99	0.34
23	Various Sources of debt capital	3	8	43	58	38	150	3.80	3.66	3.84	-1.01
24	Securities involved in venture financing: Common stocks, Convertible Bonds, Convertible preferred, Warrants & Options	3	13	50	47	36	149	3.67	3.56	3.70	-0.71
25	Exit strategies: IPO (in detail), Liquidation, Outright sale etc	5	9	32	55	48	149	3.89	3.94	3.88	0.27
26	Financial contracting	6	19	46	50	27	148	3.49	3.63	3.47	0.77
27	Information and Incentive problems in financial contracts	11	20	46	40	31	148	3.41	3.58	3.35	0.97
28	E-commerce	17	31	51	37	14	150	3.00	2.88	3.03	-0.70

Table 4 (Question 15)
Entrepreneurial finance (curriculum and pedagogy)

Question 15: In addition to the text, what other pedagogical tools should be used? (can choose more than one; percentage is based on 152 response)	Response	percentage
Cases	123	81%
Reading packets assignment	50	33%
Simulation	56	37%
Assignment of a comprehensive project which involves formation of a new company, Projecting financial statements, Determining the external financing needs	91	60%
Guest Speakers	109	72%
Others (please specify)	11	7%

the responses from the 33 respondents who reports currently teaching an entrepreneurial finance course from those who do not teach such as a course. To conserve space, we only report the mean scores (from 1, 2, 3, 4 and 5) of two groups in Columns (10) and (11) of Question 14. The last column reports a t-test for equal means in columns (10) and (11) to examine if there are differences of opinions regarding the 28 entrepreneurial finance topics in the course. With the exceptions of Statements 6, 7, and 8 (management of current assets, management of current liabilities, and traditional capital budgeting techniques), there are no significant differences about the opinions of what should be covered in an entrepreneurial finance course. For statements 6, 7, and 8, respondents who are currently teaching the course report lower mean scores (less important) than those who are not teaching the course. While there are some difference of opinions between the faculty who is teaching and not teaching the course, they agree on the majority of the entrepreneurial finance topics (25 out of 28).

Question 15 (in Table 4) asks the respondent regarding the pedagogical tools if they teach an entrepreneurial finance course. There are 123 of them suggesting using cases, 109 of them also support using guest speakers, and 91 of them like using a comprehensive project. Simulation and reading packets are relatively less with only 56 and 50 of the respondents supporting such pedagogical tools.

We present two major approaches in teaching an entrepreneurial finance course in Table 4 Question 16. The first approach suggests putting the course focusing on the venture capital with the eventual process of putting the start-ups to the IPO process. The second approach, instead, emphasizes on basic accounting and finance skills, such as financial forecast, cash budget and other financial management tools, to run a start-up. The respondents have a 3.45 and 3.88 mean scores for the first and second approach. We conduct a two sample t-test and the test statistics is 3.43, which is 1% significant, suggesting the respondents prefer the second approach in teaching an entrepreneurial finance course.

In response to our last Question (17), *please suggest any other approaches in teaching entrepreneurial finance course, w*e received 31 responses which are presented in Table 5. As expected, there were varied responses such as guest speakers, video clips, the process of venture formation, short cases, using practitioners to teach the majority of the course, team project on venture formation, and writing business plans, among others.

SUMMARY

In this study we have explored the curriculum and pedagogical issues related to entrepreneurial finance. Using online survey, we have documented the opinions of finance professors as to what should be the core content of undergraduate entrepreneurial finance course and the approach to be taken to teach this course.

On the core content of the course, the top five topics preferred by the respondents were: Identifying business opportunities and examining their feasibility, forecasting revenues and expenses for early stage ventures, cash budget and projecting financial statements using EXCEL, understanding financial statements, and estimating external

Table 4 (Question 16)
Entrepreneurial finance (curriculum and pedagogy)

	Question 16: Please rate the following statement on a scale of 1 (totally disagree) to 5(strongly agree) as to the best approach in teaching entrepreneurial finance.	**1**	**2**	**3**	**4**	**5**	**responses**	**mean**
1	Since business students already know about basic finance topics, focus should be on venture capital cycle, multistage venture capital valuation methods, structuring & negotiating deals, financial contracting and information & incentive problems, Process of going public (IPO)	12	20	38	49	31	150	3.45
2	Since only a few start-up ventures are financed with venture capital, focus should be on providing applied, realistic concepts and financial management tools to prepare an aspiring entrepreneur to manage the new venture successfully. That means in depth coverage should be provided on financial statements, cash budget, determining financial needs and building financial forecast, sources & cost of internal (bootstrapping) & external capital (debt & equity) ,valuation , and creating incentive package for managers and investors through the use of complex securities such as convertibles, warrants, and options. But students must also have some exposure to venture capital firms, venture capital cycle and process of IPOs.	3	9	36	56	45	149	3.88

funds needed and sustainable growth rate. As to the approach to be taken in teaching this course, the respondents preferred taking a balanced approach, that is, emphasis on basic accounting and finance skills, such as financial forecast, cash budget and other financial management tools, supplemented with cases to run a start-up. The other approach, putting the course focus on the venture capital with the eventual process of putting the start-ups to the IPO process was less preferred. The findings do not differ between faculty who are teaching the course and those who do not teach the course. The results presented in this study will hopefully be useful to professors thinking of designing and offering this course for the first time.

Table 5.
Text responses to open question regarding the approach of teaching entrepreneurial finance

Entrepreneurial finance is often best taught by guest speakers who have actually attempted to start their own business – both those who have succeeded AND those who have failed.
The student will know what it is like to run a business and then how to promote that business to gain access to funding sources. Further, from the investor side, the student will understand how to analyze a business and to consider what sort of return is desired if there is to be investment into the business (this also includes an exit strategy from the investment).
When discussing this issue recently I told a mgmt colleague that, to a great degree, entrepreneurial finance is not entrepreneurial. Knowing about the Angel-VC-IPO cycle is a useful piece. However even there the VC firms bring both money and expertise in firm management. Why not allow the students to develop the expertise themselves and just enough on external equity to so they recognize the how the process works if they wish to access it.
We require students to develop a business plan and travel abroad to attempt to launch it.
video clips
Have them incorporate a real company. Maybe in an incubator setting.
I think an entr. fin. course should be offered along with a "new venture formation" course. Also, to me the interesting new venture courses are those that seek to create significant and high growth, game-changing entities - not mom and pop enterprises, hence my answers to the last two questions.
Bring in people who have been successful. Don't get too many impractical professors involved in this kind of a class.
Core finance course covers traditional corporate finance methods. EF should focus on what Corp Fin does not.
I have found the case method with required strong student interaction to work best, but not always an easy approach.
we have small business courses but we do not consider it a venture capital. A venture capital is a more appropriate name for a high risk and high return business rather than running a coffee shop, a restaurant, etc. It seems that you are thinking about a small high software company to trying to raise multi-million dollar venture with a venture capitalist. That is not what we are dealing with. We are dealing with small business owners to run companies with 10 employees on St. Thomas. Many subjects listed in the questionnaire are so unrelated to subjects people here are concerned with.
Bring in successful entrepreneurs as guest lecturers, help students develop network (key).
A group project where students can develop a business plan and explain the strategy to start the new venture.
Mentoring from entrepreneurs. Dragon's den-like presentations.
We will offer this course for the first time in 2011-2012 to undergrads and grad students across the university. It is not restricted to business students so the course has to explain the financial statements to a novice.
Any course in entrepreneurial finance should be taught by finance faculty and NOT management faculty, at a minimum it should be team taught!
I have taught it as an elective for MBA students under a special problems numbered course- We do not have a course named entrepreneurial finance. I used speakers and the Smith and smith book. problem was in grading the students with a course dominated by outside speakers- if your students are sufficiently mature so that a pass/fail grade will not affect their effort then I think this is a good approach. we get involved in case competitions in which students make presentation around the company for a proposed new venture so I didn't require a project- in fact the students enrolled in the case competition course took my course during the same semester.
Financing has fundamentally changed for new ventures (see YCombinator, TechStars, super-angels, etc.) so VC funding and bootstrapping are not the only options now.
Hands on examples are extremely useful. This is true across the world. Undergrads are captive audience. It would be useful to repeat some of the concepts that they have already seen in corp. fin course. Short cases, not long ones. They must be focused. If cases are used, try to choose one company and analyze it from start to setup and into operations. If there are about 3-4 such continuous cases, the students will learn how to relate to a specific business. Many small example may be used, but the use of one business case over a couple of week to illustrate one topic is good. Of course there could be a team assignment for a business plan development as a final paper.
Entrepreneurial finance should focus on understanding financial statements and working capital management. This is what a start-up business manager needs to survive long enough to worry about the fancy topics.
Taking students to a real-world experience of meeting with venture capitalists and lawyers, and take a look at business plans and some documents in support of business contracts and agreements.

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Integrating the Core: A New Management Curriculum to Empower Our Students

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ABSTRACT

This paper follows Kennesaw State's University's (KSU) faculty journey in developing a new integrated core curriculum for their Management majors that will empower the students and meet the needs of today's employers. Curriculums must change to stay current. Depending on the amount of change, this can be a huge undertaking for a department ensconced in an existing curriculum paradigm, and can be met with resistance. In this paper we look for answers to: 1) Why is the change necessary? 2) What are we changing to? We will follow up with some thoughts about 3) how will we make these changes?

Our paper begins by defining the conceptual foundations for the Management core curriculum, followed by a look into the curriculum change process, and concludes with our eight-stage method used in developing the core curriculum model. We define four key thematic objectives that are integral to each of the core courses. The paper concludes with descriptions of our courses—Managing Organizations, Managing People, Managing Projects, Managing Your Company, and Managing Globally, and the associated integrated course sequencing. The four new courses all require field application, are integrative in nature, were developed collaboratively, and the sequence proceeds conceptually from macro to micro and back to macro in orientation. All four will meet both the requirements of face-to-face and on-line delivery.

INTRODUCTION

Curriculums must change to stay current. Depending on the amount of change, this can be a huge undertaking for a department and can be met with resistance. The process can be made easier however by working with faculty from the start to ensure that everyone involved understands the answer to three questions: 1) Why is the change necessary? 2) What are we changing to? and 3) How will we make these changes? In this paper, we reflect on the factors underlying a change in the core curriculum for management majors in the Coles College of Business at Kennesaw State University. These factors include institutional requirements, academic considerations, and practical considerations of future employers of our students.

In Fall 2009, as a faculty, we reviewed our core curriculum in Management and recognized the need to revise it based on the requirements of our various constituents. An initial task force was appointed to research current and future trends within the management field and identify "best practices" across other peer and aspirant universities (Desman, Moodie, Roebuck & Siha, 2011). In addition, the task force conducted focus groups with undergraduate students, board members of the business school, and executives in the local community. Understanding what future employers expected of our students was a critical step in establishing the direction of the proposed curriculum. Overall the business school was perceived as doing a satisfactory job in preparing students with the necessary *hard skill* sets, but the *soft skills* were found to be wanting. The focus group wanted a fundamental understanding of hard skills versus mastery.

From the analysis of the information gathered, it became clear that our students needed specific skill sets that our existing curriculum was not providing in a cohesive way. A consistent theme that emerged was the need for a *systems perspective* versus traditional disciplinary approaches. In looking at other management departments across the U.S., it became clear that a focus on topics such as *project management, teaming, decision-making,* and *problem solving* was missing from our current core curriculum. Furthermore, *communications skills* and *professionalism* seemed to be lacking across all departments across the university. Indeed this younger generation has been described as "tech savvy", "less formal", and "entitled" (SHRM, 2004). These traits could counter the need to be formal and professional in business settings. Growing up with fundamentally different experiences, role models, technology, and events from those generations before them, it seems likely that this younger generation of students has different expectations and preferences in terms of school (Twenge, Campbell, Hoffman, & Lance, 2010).

Business respondents emphasized that "Teaching students the importance of professional behavior and how to be a critical thinker" was a way for to increase the employability of our students. Another driver for the curriculum change was the need to attract more students to become management majors. While the number of management majors was still the second highest in the university, it was believed that a fresh and integrated curriculum would assist in attracting and recruiting more students to become management majors. After identifying this and other factors in phase one, it was clear "Why the change was necessary", and this was communicated to the faculty.

In fall 2010, a second curriculum task force was selected to evaluate the findings of the first task force and to develop some recommendations for how to modify the Management core curriculum. The second task force included several members of the first task force to allow for some consistency and knowledge transfer, as well as some faculty that were not part of the original group to allow for some new ideas and perspectives regarding the next question, "What are we changing to?"

CONCEPTUAL FOUNDATIONS FOR THE MANAGEMENT CORE CURRICULUM

This work conceptually flows directly from the research conducted by the first curriculum task force conducted by Desman, Moodie, Roebuck, & Siha, and published in the article, "*What does the management major need to know?"* (2011). The blank slate available to this core curriculum redesign committee challenged its members to create a totally new educational experience for management majors. To accomplish this, the committee would harvest the best practices in instructional design.

Cognitive, Affective, & Psychomotor Domains

When investigating alternative frameworks for the design of materials, experiences, and learning environments for undergraduate courses, Bloom's taxonomy (1956) dominates. This taxonomy of educational objectives includes three domains: cognitive, affective, and psychomotor.

The *cognitive domain* focuses on skills dealing with how we think utilizing knowledge, comprehension, and critical thinking on a topic or an issue. Within this domain, a continuum of basic to more complex categories is developed. The categories range from basic knowledge recall to comprehensive applications, analysis, synthesis, and finally evaluation judgments. Most undergraduate business education emphasizes skills in this domain, but often at the lower levels.

Affective domain centers on emotional awareness and personal growth. Affective learning categories include receiving, responding, evaluating, organizing, and internalizing values and beliefs. Recent attention on the importance of emotional intelligence in explaining managerial effectiveness is well within the affective domain.

Psychomotor domain objectives deal with the development of overt motor skills, movement, and coordination capabilities. Its seven categories revolve around application and demonstration of physical motor skills tied to task requirements. While this may be the least applicable to managerial job performance, mastery of communication presentation skills could qualify in this domain.

Hard and Soft Skill Sets and Thematic Objectives

Bloom's (1956) work is also consistent with several of the findings reported in the first task force's report. These included the need to communicate clear learning goals for hard and soft skill development, the power of student performance feedback, and skill mastery in problem solving. Existing courses encouraged learning facts and recall, with higher order thinking skill development under-represented.

Building a new core curriculum around basic *thematic objectives* that would build from course to course would also draw from other pedagogical approaches and advances in management education. Problem-based learning approaches and management skill development models provide two rich pedagogical bases for guiding curriculum development.

Problem-based learning is built on a student centered pedagogy platform that challenges small student groups to resolve complex real world dilemmas. Faculty function as facilitators providing support, process modeling, and a learning outcome focus. Students use various problem-solving tools to construct original solutions to managerial problems. It simultaneously expands student's communication, critical thinking, collaboration, and self-directed learning experiences (Amador, Miles & Peters, 2006; Major & Palmer, 2001).

Management skill development models will also guide construction of the new management core curriculum. Self-assessments identify, develop, and evaluate essential managerial skill levels, using personal and organizationally rich learning cases, simulations, and exercises. Building and leveraging personal, interpersonal, group, and organizational skill sets enhance the student's effectiveness in managerial roles. (Whetten & Cameron, 2011; Quinn, Faerman, Thompson, McGrath & St. Clair, 2010).

Moving beyond the cognitive learning perspectives, the managerial skills approaches emphasizes practical behavioral competencies. Students then demonstrate and practice these skill sets using common managerial task scenarios and real world case studies. Student confidence and competence enhances through practice. These activities target self-management, communication, problem solving, motivation, performance management, power and influence, team building, and change management skills (Baldwin, Bommer & Rubin, 2008).

Systems and the Context Model

One of the key factors driving the development of our new curriculum was the contention that our Management students needed an integrative systems perspective versus a traditional disciplinary approach to the field. Those who can see the big picture and facilitate making complex systems work would seem to have a competitive edge (Desman et al., 2011).

The system is always imbedded in a larger system. (Churchman, 1968)

Ushered in by World War II, the "Marketing Concept" in the early 1950's, and Kenneth Boulding's article "General Systems Theory — The Skeleton of Science," (1956), contemporary perspectives on systems reflect the realization that organizations are not *closed systems*, but are *open systems*. In fact, they are *systems of systems, within systems*. To fully comprehend organizations, one cannot limit one's concerns to elements and the dynamics of those elements; rather, one must also consider the relationships among elements, sub-systems, and super-systems along with their dynamic properties. Once one departs from the one dimensional simplicity of a machine or social system model of organization, the clarity and directionality of cause-effect relationships becomes considerably more diffuse. Although the open systems perspective provides a more realistic vantage point than alternative views, the observer is often overwhelmed by a far-more complex vista.

(Desman & Brawley, 2011). To quote organization theorist Charles Perrow, "*Everything is connected to everything else.*" (1973).

A clear perspective on the total organization as a system requires one to also understand the subsystems that comprise it. Understanding organizations as systems, and planning for them, is much like solving simultaneous mathematical equations, but with one exception. Because organizations, and the contexts in which they operate, are dynamic, the "numbers" keep changing. What one needs is a means by which one can freeze the system and analyze the elements without losing track of system relationships and process interaction, Such a methodology would permit viewing organizations from multiple perspectives, with sufficient accuracy to preserve realism, yet simple enough to facilitate comprehension. (Desman & Brawley, 2011)

For this we took our lead from the context model (\shown in Figure 1, is adapted from Desman & Brawley (2011). The context model recognizes the relationships between the external environments and the internal organization. The early research suggests that organizations operate not in a single environment, but in an environment of environments. Furthermore, each of these environments appears to be hierarchically related to the others. The organization itself must be added to the list because it too constitutes an environment and within it exist still other environments. The elements flow from the *macro* elements in the external environments, Natural/ Institutional/Market, to the *macro* organizational design elements, Plans/Configurations/ Processes/ and Assets, to the *micro* elements, Objects/People/Events. It is important to remember at the macro level, the only thing that management can manipulate and control are the plans, configurations, processes, and assets. At the micro level, we can only move the people, objects, or events. Management can take place at the macro level of the organization-environmental interface (Strategic Management), it can coordinate the internal operating organization (Operating System Management), or it can function within internal subsystems of the organization (Functional Management). Our management majors need to understand all three.

The external environments determine *reality*, and provide opportunities and threats to the organization. The internal organizational resources, plans/configurations/processes/assets along with the objects/people/events determine what is both *feasible* (strengths and weaknesses) and what is *desirable* (support and oppose) to the organization. It is from this conceptual perspective of systems and the context in which the organization operates that our core curriculum was developed.

THE CURRICULUM CHANGE PROCESS

Following the initial research done by first curriculum task force, the actual activity of initiating change in our Management core was designed as a two phased process: the initial design of the new major and associated courses, and the implementation phase.

New Major/Course Design Process

The design process itself was a six-stage process:

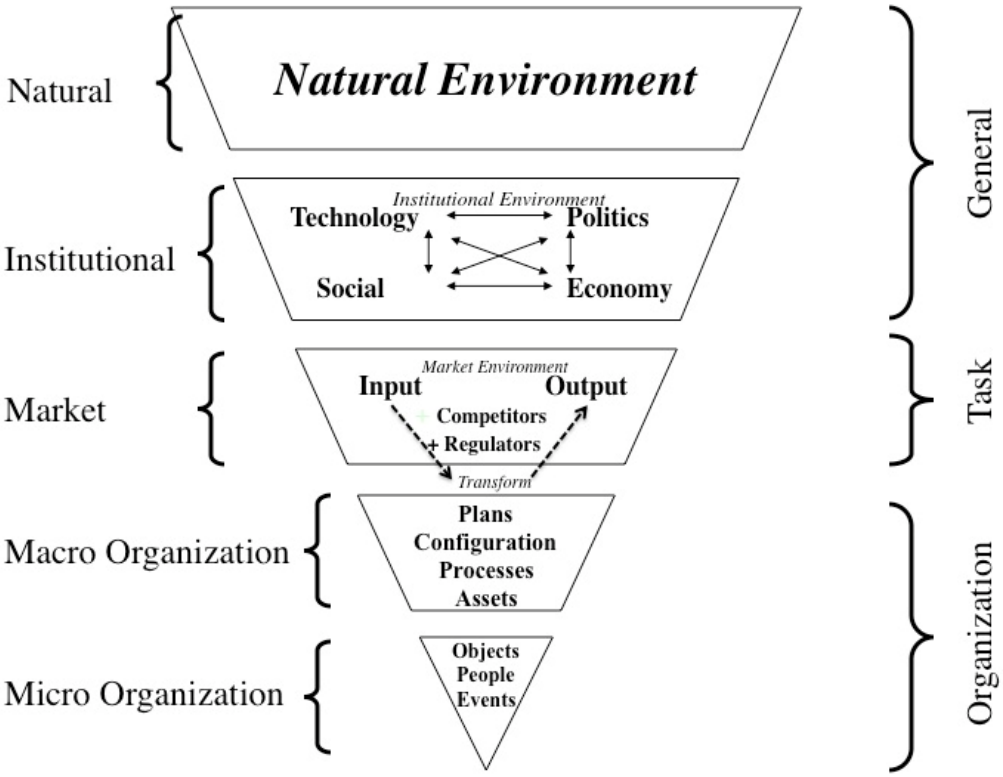
1. Task Force's Charter, Purpose, and Selection (the Department Chair's Charge).
2. Build a Broad Conceptual Framework and Integrative Themes for Management Core (the Major Field Requirements).
3. Select Course Champions (Coordinators for each core course).
4. Create Course Domains and Syllabi.
5. Collect Presentation Feedback from Departmental Faculty.
6. Submit Proposals to Curriculum Review Committees (at the Department, College, and University levels) for Approval.

New Major/Course Implementation Process

The implementation process is a four-stage process:

1. Specification of Faculty Commitments, Integration of Support (non-tenure track) faculty, and Compensation Options.
2. Integration of Rubrics, Assurance of Learning (AOL) assessments, and Quality Matters requirements for final content and on-line certification.
3. Rollout Sequence and Scheduling;

Figre 1
The Context Model



a. Review initial offerings,
b. Revisions integrated across four courses,
c. Add online versions of each course,
d. Expand faculty ranks teaching the core courses (e.g., use of support faculty),
e. Monitor AOL and collect accreditation required data,
f. Phase out of old core courses.

4. Discussion;
   a. Collect assessments, revisions and reviews of the new core courses,
   b. Review of core curriculum themes across the course offerings.

The focus of this paper is solely on the *design process* phase of the new Management core curriculum.

Developing the Core Curriculum Model

The development of the Management Core Curriculum model was an 8-stage process:

1. defining skills needed to empower our students in the classroom and in the workforce;
2. institutional requirements;
3. identifying the gap between existing skills taught versus skills needed;
4. themes to guide development - thematic objectives;
5. relationship to context model (macro-micro-macro);
6. course descriptions;
7. relationships among courses;
8. collaboration across courses.

(1) Defining the Skills Needed to Empower Our Students in the Classroom and in the Workforce

In looking at the data gathering completed by first task force, perhaps the most promising approach to assessing demanded and forecasting skill needs is to revisit the CEO perceptions on the shifting world of work and the external demands placed on business systems (Desman et al., 2011). Based on that research, the new core needed to incorporate the following hard and soft skills is shown in Table 1.

Table 1
Skills Management Majors Need

Hard Skills	Soft Skills
An understanding of Systems and the external Context in which it operates	Business Communication
An emphasis on research/analysis/ report writing	Teaming
Basic planning, organizing, implementation and control skills	Business Etiquette
Understanding the role and methods of administration	Negotiation
Organization analysis and change (macro)	Ethics
Program and project management methods	Decision Making and Problem Solving
Managing across national borders	Group Processes and Teaming
Organization effectiveness assessment/evaluation and remediation	Leadership
Computer Literacy and Business Software	Professionalism

(2) Institutional Requirements

In order to understand the opportunities and constraints on our charge to redesign the Management Core curriculum, it would help to understand a little bit about our institution.

Kennesaw State University (KSU) is the third largest of the 36 public institutions in the University System of Georgia. As of 2010-11, Kennesaw State University had 23,452 total enrollment, 21,135 FTE students, 1,985 graduate enrollment, 11,335 upper division students, and 5,681 new students.

The Michael J. Coles College of Business is accredited by AACSB and SACS. For FY 2010-11, Coles enrolled more than 4766 students, representing over 4043 declared undergraduate majors, 682 declared master's students, and 41 declared doctoral students. For FY 2010-11, 318 students graduated from our MBA programs, 69 graduated from our M.ACC. program, and 823 from our undergraduate business program; 30% of total degrees conferred by KSU are from the Coles College of Business. Declared majors in our *BBA Management* degree program, Fall 2010, numbered 1245; Management degrees conferred were 296. (KSU Fact Book, 2010-11, p.93, 117,130, 134)

In addition to the skills outlined in Table 1, due to the size of our program and limitations on adding resources, we had the following set of institutional parameters:

1. The Management Major, including major field requirements and electives, could include eight or nine, three credit hour semester courses. If we selected nine courses then the additional hours would have to be taken from general business electives — this could limit the ability of students to pursue co-ops and internships.
2. The core could include four to five, three credit semester hour courses.
3. As part of our institutional accreditation in 2006-07, KSU launched a Quality Enhancement Plan (QEP) with a focus on global learning for engaged citizenship and we needed a plan to fulfill this global initiative within our major.
4. A prerequisite to all Management Field Requirements would be the completion of the BBA required core, MGT 3100, Management and Behavioral Sciences.
5. Additional departmental specifications.

6. The requirement that the new courses be deliverable in both face-to-face and online formats.
7. The online courses had to meet QM (Quality Matters) standards for online teaching.
8. That we had to teach the courses in traditional, individual faculty scheduling blocks, thus eliminating team teaching as a viable option.
9. Courses need to be teachable in sections of 40-50 students per class.

(3) Identifying the Gap between Existing Skills Taught in the Management Major Core versus the Needed Skills

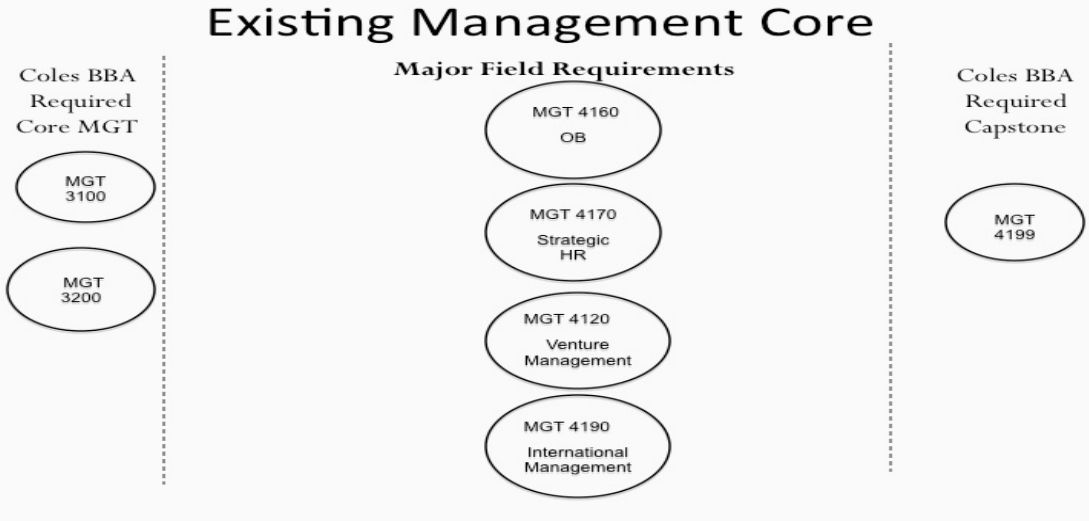
The existing Management Core within the BBA is composed of the following courses shown in Table 2, in the configuration shown in Figure 2. Although each of the current major field requirements have MGT 3100 (Management & Behavioral Science) as a prerequisite, in the existing Core there is no relationship among the required courses, and no order to how they are taken, nor collaboration in developing experiences for our students. KSU selected the four required courses as discrete autonomous, independent elements, each giving an introduction to our existing management concentrations in Entrepreneurship, Human Resource Management, and International Management. The Operations area is also a track in the Management area, and the MGT 3200 in the BBA core introduces it. In designing the existing core, no thought was given to collaborative effort across courses, or to integration. The courses do not build on each other and therefore, the students' experience with the core was one of learning material in an unrelated vacuum, with limited adaptability to alternative situations. Continuous learning and growth as a manager was not perceived as a goal in the core, rather discipline specific knowledge to pass the course was the goal.

The existing courses, shown in Table 2, encouraged discrete experiences, learning facts and recall, with higher order thinking skill development under-represented and no progressive learning expectations existed within the core.

Table 2
Existing Undergraduate Management Department Courses in the Core

Business (BBA) Core
MGT 3100: Management & Behavioral Science
MGT 3200: Operations Management
MGT 4199: Strategic Management
Management Major Core Field Requirements
MGT 4120: Venture Management
MGT 4160: Organizational Behavior
MGT 4170: Human Resource Management
MGT 4190: International Management

Figure 2
Existing Management Core



(4)Themes to Guide Development—Thematic Objectives

Following from Bloom's taxonomy, all four new courses plus the Managing Globally requirement meet the four overriding themes of our program involving content, skill and attitudes: content (cognitive domain-knowledge-good critical thinkers), meaningful application (psychomotor domain-skill-good team players), presentation style (psychomotor domain- skill-good communicators), and understanding and embodying how managers think and behave (affective domain- attitude).

In designing the new core, the task force decided that given that these would be integrated courses, all four core courses would reinforce these thematic learning objectives:

1. Students obtain a solid understanding of *systems, and the context in which a successful organization operates.*
2. *Students learn how managers think and gain an understanding of the key factors impacting managers' decision-making and problem solving.*
3. *Students engage in group processes* and deal with the organizational design issues associated with *creating and leading high performance teams*.
4. Students demonstrate *professionalism* in both their *actions and communications.*

(6) Relationship to Context Model (Macro-Micro-Macro)

In developing the core, we went back to the context model. We felt our Management majors needed a clear general foundation in Management and Behavioral Science before entering the major, therefore all courses require MGT 3100 as a prerequisite for admission.

From there, we wanted our students to get a strong orientation of the organization as a system, with it's interaction with the external environments and the *macro* organizational elements of planning, configurations (design and structure), processes, and assets. Along with this, we wanted our students to have a clear understanding of how managers at different levels think and behave, make ethical decisions, handle lifecycles, and source valid and reliable information. Out of this discussion we developed MGT 4001, ***Managing Organizations,*** as the introductory course to the major.

MGT 4002, ***Managing People,*** and MGT 4003, ***Managing Projects,*** build on the knowledge in MGT 4001 and focus on the *micro* organizational elements of objects, people and events in planning, system design, processes and allocation of assets.

MGT 4004, ***Managing Your Company,*** is the final capstone course in the Management major's required core. In this course, students will put to work everything they have learned in their core courses, both BBA and Management, to run their own simulated company. Here students establish their knowledge of reality (external environment-opportunities/threats), feasibility (internal organizational resources-strengths/weaknesses), and desirability (goals, values, culture-support/oppose); their ability to evaluate alternatives, plan for the future, and implement and control a plan of action.

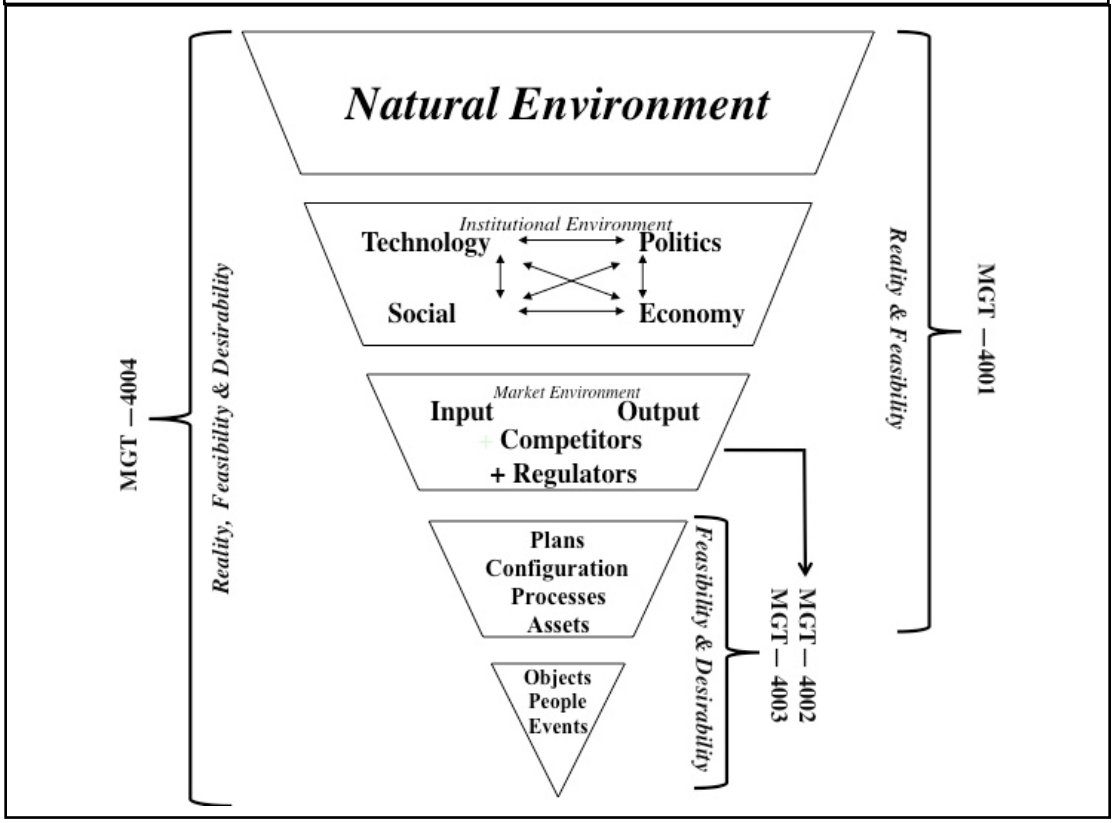
Our recommendations to the faculty were to:

1. Change the current four course major field requirement (12 credit hours), to a five course, sequenced and integrated major field requirement (15 credit hours). This includes MGT4001, MGT4002, MGT4003 and MGT 4004; and, a three credit hours Managing Globally Major Field Requirement
2. Change the major field elective requirement from twelve credit hours (unrestricted MGT) to nine credit hours unrestricted MGT
3. Leave the general business electives requirement at nine credit hours to give the BBA Management student the maximum opportunity to participate in internships and co-ops.

Figure 3 shows how the four new courses fit into the context model.

Table 4 (on page 56) highlights the course descriptions of the five new courses that make up the Management Major Field Requirements for our BBA students.

Figure 3
The Context Model and its Relationship to the Proposed Core



(7) Relationships Among Courses

Figure 4 shows the key courses and their relationships in the new Management Core.

Table 3 details the key required Management courses in the BBA for the Management Major. Sequencing is established by the prerequisites to each course.

Table 3
Proposed Undergraduate Management Department Courses

Management Courses in the Business Core
MGT 3100: Management & Behavioral Science
MGT 3200: Operations Management
MGT 4199: Strategic Management
Management's Major Field Requirements
MGT 4001: Managing Organizations
MGT 4002: Managing People
MGT 4003: Managing Projects
MGT 4004: Managing Your Company
MGT 4XXX Managing Globally
MGT 4XXX Management Electives (9 hours)

CONCLUSIONS AND RECOMMENDATIONS

Based on the work of the Management & Entrepreneurship first curriculum task force findings and committee discussions, the second curriculum task force proposed a fifteen credit hour sequence of required courses (four courses, 12 credit hours, sequenced core plus a three credit hour Managing Globally requirement). Four of these courses are new, sequenced, integrated course requirements. All four require field application, and are integrative, going from Macro to Micro and back to Macro conceptually. All four are sequenced and will be developed collaboratively to meet both the requirements of face-to-face and on-line delivery. Sequencing of the courses and prior knowledge is critical to meet the learning objectives of the individual courses and the ma-

Table 4
Proposed MGT Major Field Requirements-Description of Courses

Management Major Field Requirements (15 credit hours)

MGT 4001: Managing Organizations

3 hrs. Prerequisite: Business Majors: Sophomore GPA requirement and MGT 3100; Non-business Majors: MGT 3100 and permission of the Coles College of Business.

Where, what, and how do managers manage? Managing Organizations introduces students to the "world of a manager" and provides a framework for management majors. Starting with the big picture, students learn about the various external factors that impact organizations, structure, and culture. Internal factors including leadership, teaming, problem solving and managing communications are also addressed.

MGT 4002: Managing People

3 hrs. Prerequisite: Business Majors: Sophomore GPA requirement and MGT 4001; Non-business Majors: MGT 4001 and permission of the Coles College of Business.

People are an organization's most valuable assets. Managing People provides students with an understanding and capability to manage these assets (self and others) to support the goals of the organization. It covers the human resource practices and people management skills used to attract, motivate, develop, and retain employees. Students also develop self-management skills and personal career growth strategies to enhance their professionalism and employability.

MGT 4003: Managing Projects

3hrs. Prerequisite: Business Majors: Sophomore GPA Requirement and MGT 4001; Non-business Majors; Non-business majors require permission of the Coles College of Business

In Managing Projects students complete organizational projects on time and on budget. This course introduces students to project management (PM) from both a process and project tool standpoint. Students focus on understanding project definition and scope, resource allocation, task dependencies and risk management. Students use PM software in the context of managing a team project.

MGT 4004: Managing Your Company

3hrs. Prerequisite: Business Majors: Sophomore GPA requirement. Students must have completed the required core upper-division business courses including ECON 3300, FIN 3100, MKTG 3100, MGT 3200, 4002 and MGT 4003; Non-business Majors: Permission of the Coles College of Business.

In Managing Your Company students develop a long-term vision and competitive strategy for a company. Students balance short-term objectives with long-term strategic goals. They recognize interactions among the internal factors (resources and processes) and external environments, and the impact of both on performance. Students also demonstrate their ability to make decisions, and to analyze, justify and professionally communicate the results of those decisions.

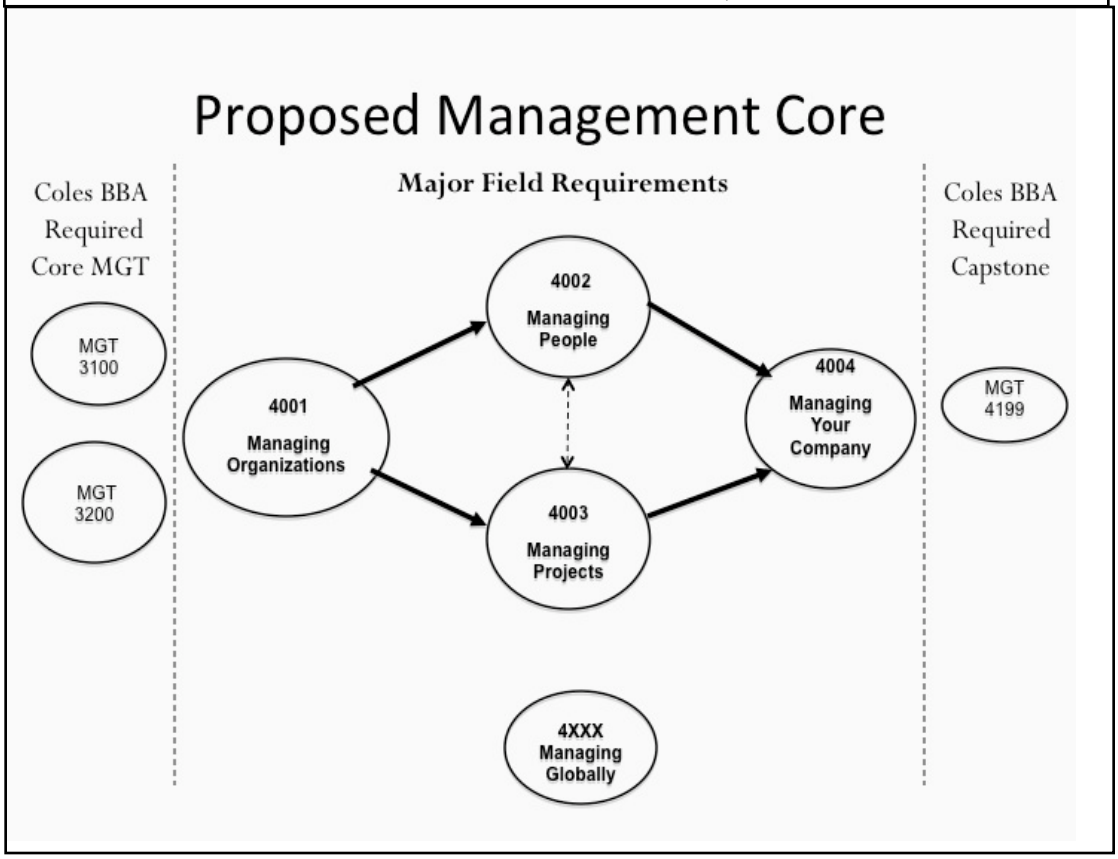
Managing Globally:

3 hrs.

The ability to manage in the global context is a requirement of all managers today. Management majors are required to take one of the following MGT international elective courses from the list below to fulfill the Managing Globally requirement:

- MGT 4125 - International Entrepreneurship
- MGT 4174 - International Human Resource Management
- MGT 4190 - International Management
- MGT 4476 - Contemporary Global Business Practices
- MGT 4800 - International Supply Chain Management

Figure 4
Proposed Management Core: An Integrated, Sequential Model



jor as the knowledge builds across the course sequence with unifying experiences carried across the core emphasizing different aspects of the field case/examples.

All four new courses plus the Managing Globally requirement meet the four primary learning objectives of our program: content (cognitive domain-knowledge-good critical thinkers), meaningful application (psychomotor domain-skill-good team players), presentation style (psychomotor domain-skill-good communicators), and understanding how managers think and behave (affective domain-attitude).

This proposal was presented to the Management & Entrepreneurship faculty during a meeting in spring 2011. The task force received unanimous faculty support by all full-time faculty to move forward with the design, curriculum review, acceptance, and launch of the new core courses in fall 2012.

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Students' Readiness for E-learning: A Case Study of Sukhothai Thammathirat Open University,Thailand

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ABSTRACT

The process of e-learning is the operations that involve humans, computers, the Internet, and instructional material, and that produces the outputs to learners and the organization. The purposes of this research were (1) to study students' readiness for e-learning of graduate students majoring in educational administration, School of Educational Studies,Sukhothai Thammathirat Open University ; (2) to compare students' readiness for e-learning of graduate students majoring in educational administration, as classified by gender, age, technology experience .The research sample consisted of 162 graduate students majoring in educational administration, obtained by simple random sampling. The research instrument was a rating scale questionnaire with .86 level of reliability.The statistics used for data analysis were percentage, mean, standard deviation, t-test, and ANOVA. The research findings showed that (1) the over all of students' readiness for e-learning of graduate students majoring in educational administration were ready status and category that Technology Access had the highest mean and Study skills,Technology skills had the lowest mean.; (2) There was no significant difference of the students' readiness for e-learning of graduate students majoring in educational administration as classified by gender,age groups, and technology experiences.It is recommend that the university should improve graduate students' readiness in Study skills, and Technology skills.

INTRODUCTION

Distance education is to promote self study or independent study among distance learners in the absence of regular face-to-face to face teaching (Simpson, 2001). The rapidly changing global economies enhance people and organizations to keep up with the rapid changes that define the Internet world. E-learning is a new education concept by using the Internet technology, it deliveries the digital content, provides a learner-orient environment for the teachers and students. To achieve this, every Distance Learning Institutions extend support to its learner, All these activities beyond the production and delivery of course material assist in the progress of students in term of learning, interacting and effective communication. As above mentioned, student support services provided by Distance Learning Institutions are still based on factors of the learning process such as attention, motivation, emotional aspects, and students' readiness to different e-learning strategies. Kanchana Chokriensukchai (2005)studied A Feasibility Study of Using E-Learning for Post-Graduate Studies. It found that e- Learning was saving time and money in traveling to school. The students were lack of technology skills and english. They had negative attitudes towards e- Learning. The lessons were not interesting.

Sukhothai Thammathirat Open University (STOU) was established in 1978. The university employs distance learning system that makes quality higher education accessible to all who wish to further their studies, especially adult learner. The main teaching materials have traditionally been print-based packages that are mailed to students. Presently, the university has begun offering two instructional approaches: one centered on printed core materials and the other on computer-based study materials. In 2013, The university will be provided the teaching through e-Learning for graduate students. The university prepares the readiness of instruc-

tor for e-Learning by short time training. The efficiency of e-learning built upon a unique relationship between learners and instructors. Most of graduate students in Educational Aaministration Department are working people who have an age range going from 30 to 60. They will learn to use Technology with the requirements of being a distance masteral student. There is a critical question of how to motivate them to fully be absorbed in the online learning process.It is necessary to understand graduate students' readiness for transition an adult learner into e-learning . Strategies need to be developed based on graduate students' readiness.

This study aimed to study students' readiness for e-learning and compare the personnel's opinions towards students' readiness for e-learning according of gender, age, technology experience of graduate students who attended in Educational Administration, School of Educational Studies, Sukhothai Thammathirat Open University.

LITERATURE REVIEW

E-learning

E-learning can be defined from different perspectives. There are specialists who consider that e-learning means any teaching process which integrates any form of technology, but there are others who claim that e-learning represents a teaching solution for distance education, facilitated by the massive penetration of internet as a form of communication. E-learning is rapidly growing as an acceptable way of education. Remarkable progress has been made in e-learning in couple of last decades (Raymond,2000).

Nichols (2003) defines the concept as the use of various technological tools that are either Web-based, Web-distributed or Web-capable for the purposes of education. Hoppe and Breitner (2003) describe e-learning as a learning which is supported and/or made possible by the use of modern ICT and computers. Newman (2008) defines e-learning as usage modern ICT to deliver learning and training programs.

One of the most popular forms of e-learning is online learning via the Web. Research suggests that to succeed in online learning, learners must be able to motivate themselves, manage their time wisely, take responsibility for their own learning, and participate in the give-and-take of electronic discussions (Collett, 2000, cited in Porter and O'Connor, 2001; Rovai, 2003; Smith, Murphy, &Mahoney, 2003). Furthermore, they must take initiative, be resourceful, demonstrate persistence, and believe in their ability to organize and carry out the actions needed to engage in learning (Derrick, 2003). Online learners need to be able to solve problems and to evaluate and monitor their own learning.

The nature of instruction also plays a big role in successful online learning, and online instructors vary in their ability to help students succeed. Johnson and Aragon (2003) identify the following seven general pedagogical principles as critical for success in online learning environments: (1) Address individual differences. (2) Motivate the students. (3) Avoid information overload. (4) Create a real-life context. (5) Encourage social interaction. (6) Provide hands-on activities. (7) Encourage student reflection.

As above mentioned, e-learning can be defined as web- based teaching and learning using computer, multimedia, and internet technologies. E-learning can frequently be viewed as a more varied approach to learning, which in turn may have an increased difficultly with obtaining success. As with traditional learning environments, the success with e-learning depends on both the instructor and learner itself. However, people often agree that e-learning requires a certain type of learner and even instructor. Overall, the conditions to ensure success simply revolve around two necessary parties; the learner and instructor. E-learning is a unique and relatively new concept as far as learning is concerned. Though important, without learners, e-learning would not be able to flourish. So much is dependant on learners for making this new form of distance learning success.

Learner Readiness

The students or learners success with a variety of different learning styles, one must exhibit qualities such as self-determination and an overall strive for excellence. With these qualities being absent, the learner may struggle to move forth throughout the experience due to the many high demands. For adults, becoming a self-directed learner includes not only knowledge of study strategies but also practice and attitudes (Schrader-Naef, 1999). The readiness and ability for an adult to succeed in an online learning format

is furthered when there is a combination of appropriate learning environments with strategic training (Straka &Stockl, 1998).

Watkins *et al.* (2003) develop an instrument to measure an individual's perceived readiness to engage in e-learning. The instrument included several items which are technology access, online skills and relationships, motivation, ability to use online audio/video, ability to use Internet discussions, importance to learner's success.

The College of Business Administration at Tarleton State University offers an online orientation for all new online graduate students (Gaide, 2004). The orientation helps create a sense of welcome to new students, it provides an orientation to course requirements, it has modules that advise students about administrative issues and it familiarizes students with WebCT. The online orientation uses the same look and feel of its regular online courses enabling students to experience what they will in a real class.

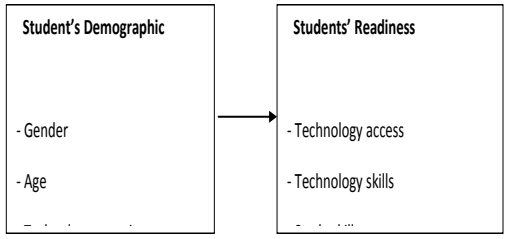
Newman(2008) describes disadvantages of e-learning from participant point of view are as follows: (1) Feeling of isolation - Participants may feel isolated from their teacher and/or class mattes, because there are no physical contacts among participants.(2)Technology issues -Participants must have a computer with access to internet and other adherent equipment (e.g. printer, loudspeakers). In some places are internet connections inappropriate (e.g. lack of broad band internet). Slow internet connection could cause frustrations. (3) Basic computer skills - Participants in e-learning must have sufficient level of skills and knowledge how to use modern ICT and computers. Some peoples have phobias concerning using computers and modern ICT. Management of computer files and online software may be difficult for some participants.(4)Lack of self-discipline and self-motivation- Participants with lack of motivation and/or lower lever of self discipline may fall behind.(5)Problems and open dilemmas about most appropriate method of evaluating participants' work/success in e-learning process.

Jed Rosenberg(2009) describes ten strategies for a successful e-learning Experience. These strategies are as follows: (1)Time management- It is important that every online learner understand the need to arrange a time within their weekly schedule to dedicate to the online courses. (2)Web experience - Students should also be comfortable with various Internet tasks. Those tasks should include navigating the web, emailing, downloading and uploading files, and posting messages to a discussion board. (3)Awareness of written tones -Students need to also keep in mind when corresponding with instructors or peers, that tone is invisible. Humor and other human emotions are difficult to express when communicating electronically. (4)Form a virtual study group - This is a great one. With online learning, you will not have the regular day to day interaction with teachers and fellow students. Take time during the first week of the course to develop a virtual study group. (5)System requirements - A student enrolled in online course also needs to have the appropriate technology. Before beginning a course, students should install appropriate software, Internet browser versions, and multimedia plug-ins.(6)High motivation-Motivation is a key ingredient with online learning. It is essential for students to be highly motivated and have a positive attitude when attending online courses. Motivation will increase the student's success. (7)Interest in the subject - Learning online is a new experience for many people. Be willing to try and accept a new learning style. (8)Learning environment- Students should create an effective learning environment where they plan to study. (9)Take breaks - Students should also get into the habit of taking short, frequent breaks. (10) Avoid procrastination-Students should make an effort to avoid procrastination. To reduce stress, students need to complete assignments within an appropriate amount of time and not submit them at the last minute.

CONCEPTUAL FRAMEWORK

Based on literature review, the conceptual framework of this study is represented below.

FIGURE1
CONCEPTUAL FRAMEWORK OF THE STUDENTS'READINESS



RESEARCH METHODOLOGY

The researchers used quantitative procedures. The sample size for this research consisted of 162 graduate students who attended in Educational Administration, School of Educational Studies,2010. They were selected by simple random sampling. The data collection was gained through research questionnaires that distributed to the respondents. There were 2 sections in the questionnaire. Section 1 focused on the student's demographic according of gender, age, technology experience. Section 2 consisted of students' readiness that which were grouped into five aspects:technology access, technology skills, study skills, time management,and motivation. The five aspects, a total of 25 items were measured on a five-point Likert scale. Conducted Pilot. Testing questionnaire with a experimental group of 30 individuals who were not the sample and analyzed the data for accuracy by means of employing the Cronbach's alpha coefficient. The result of the reliability test was shown in Table 1.

Table 1
Questionnaire Reliability Index

Readiness Category	Item	Cronbach's alpha
Technology access	5	0.869
Technology skills	5	0.871
Study skills	5	0.845
Time management	5	0.853
Motivation	5	0.863
Total	25	0.860

The respondent were requested to state their readiness for e-learning by choosing one of the scale showed in Table2.

Table 2
Scale Statement of Students' Readiness for e-Learning

	Strongly Not Ready	Not Ready	Moderate	Ready	Strongly Not Ready
Scale	1	2	3	4	5

The data gained from respondents are analysis by using of mean score statistic and standard deviation. Statistic interpretation of readiness ((5-1)/5=0.8) is showed in Table3.

Table 3
Interpretation of Students' Readiness for e-Learning

Mean Score Range	Interpretation of Readiness
1.00 to ≤ 1.80	Strongly Not Ready
> 1.80 to ≤ 2.61	Not Ready
> 2.61 to ≤ 3.41	Moderate
> 3.41 to ≤ 4.21	Ready
> 4.21 to ≤ 5.00	Strongly Ready

The statistics used for data analysis were the percentage, mean, standard deviation, t- test, and one-way analysis of variance (ANOVA).

RESULTS AND DISCUSSION

The student's demographic were analyzed that male respondents were represented by 45.06% and female was 54.94%. By age, they were grouped into four categories: 21 to 30 years old comprised of 2.46%, 31 to 40 years old was 32.09%, 41 to 50 years old was 39.53%, 51 to 60 years old was 25.92%.By technology experience , they were grouped into four categories: 5to 10 years comprised of 27.78%, 11 to 15 years was53.09%, 16 to 20 years was 19.1 3%, and above 20 years was represented by 19.13%.

Analysis on students' readiness is presented in Table 4.

Table 4
Mean and Standard deviation of Students' Readiness (N=162)

Category	M	SD
Technology Access	3.91	.84
Technology Skills	3.68	.66
Study Skills	3.65	.72
Time Management Skills	3.83	.82
Motivation	3.88	.79
Overall	3.78	.70

Table 4 indicated that the overall of students' readiness was rated at the ready status ; category of students' readiness could be ranked as follow :Technology Access, Motivation, Time management skills, Technology skills, and Study skills. These results are consistent with Straka and Stockl(1998), and Gaide (2004)who describe the readiness and ability for an adult to succeed in an

online learning format is furthered when there is a combination of appropriate learning environments with strategic training. The instructor offers an online orientation for all new online graduate students. The orientation helps create a sense of welcome to new students, it provides an orientation to course requirements, it has modules that advise students about administrative issues and it familiarizes students with Web CT. The online orientation uses the same look and feel of its regular online courses enabling students to experience what they will in a real class.

Table 5
Mean and Standard deviation of Technology access

Technology access	M	SD
I have access to a computer on a daily basis.	3.98	.96
I have access to a computer with an Internet connection at home.	3.88	.87
I have a virus protection on my computer.	3.96	.97
I have access to a computer with the necessary software install.	3.92	.90
I have access to a computer in campus with stable internet connection.	3.83	.89
Overall	3.91	.84

Table 5 indicated that the overall of Technology Access was rated at the ready status and item that I have access to a computer on a daily basis had the highest mean and I have access to a computer in campus with stable internet connection had the lowest mean..The results show the students must also have skills about some basic computer maintenance. These results are consistent with Newman(2008),and Jed Rosenberg (2009)who state the participants must have a computer with access to internet and other adherent equipment (e.g. printer, loudspeakers). A student enrolled in online course also needs to have the appropriate technology. Before beginning a course, students should install appropriate software, Internet browser versions, and multimedia plug-ins.

Table 6
Mean and Standard deviation of Technology skills

Technology skills	M	SD
I can save/open documents to/ from a hard disk or other removable storage device.	3.78	.78
I can navigate the WebPages. (go to next, or previous page)	3.70	.82
I can send and receive email attachments.	3.75	.69
I can resolve commons errors while surfing the internet such as page not found or connection time out.	3.62	.70
I can use the advanced Internet skills, such as using a search engine, identifying and downloading appropriate files, and installing or updating software.	3.60	.71
Overall	**3.68**	**.66**

Table 6 indicated that the overall of Technology Access was rated at the ready status and item that I can save/open documents to/ from a hard disk or other removable storage device had the highest mean and I can use the advanced Internet skills, such as using a search engine, identifying and downloading appropriate files, and installing or updating software had the lowest mean. The result assessed students' level and confidence to use computers, to work with files, to log on to the Internet and navigate on the net, as well as their email skills. These results are consistent with Newman (2008),and Jed Rosenberg (2009) who cite the basic computer skills - participants in e-learning must have sufficient level of skills and knowledge how to use modern ICT and computers. Those tasks should include navigating the web, emailing, downloading and uploading files, and posting messages to a discussion board.

Table 7 indicated that the overall of Study skills was rated at the ready status and item that I can follow a structured approach to find solutions to a problem had the highest mean and I am comfortable doing academic work independently and without regular face-to-face interaction with an instructor had the lowest mean. These results confirm that students were ready to join an e-learning program and succeed due to their effective study habits.

Table 7
Mean and Standard deviation of Study skills

Study skills	M	SD
I can follow a structured approach to find solutions to a problem.	3.72	.79
I can communicate effectively with other students using online technologies.	3.71	.78
I can express my thoughts and ideas in writing.	3.64	.72
I can learn new technologies ; I do not put it off or avoid it.	3.59	.70
I am comfortable doing academic work independently and without regular face-to-face interaction with an instructor.	3.57	.69
Overall	3.65	.72

Table 8
Mean and Standard deviation of Time management skills

Time management skills	M	SD
I can schedule time to provide timely responses to other students and/or the instructor.	3.93	.95
I can control my desire to postpone important tasks.	3.79	.80
I can get assignment done ahead of time.	3.90	.93
I can sacrifice personal time to complete assignments and reading.	3.92	.91
I have the self-discipline to log in and participate in an online course several times a week	3.65	.75
Overall	3.83	.82

Table 8 indicated that the overall of Time management skills was rated at the ready status and item that I can schedule time to provide timely responses to other students and/or the instructor had the highest mean and I have the self-discipline to log in and participate in an online course several times a week had the lowest mean. The fact that the students had the possibility to change their daily schedule in such a way to fit with their study requirements due dates, made it possible to solve the problem of time management. A flexible e-learning program and an appropriate time management from e-learners will be ideal to solve the lack of time required from students to study. The results are consistent with Jed Rosenberg (2009) who explain the time management is important that every online learner understand the need to arrange a time within their weekly schedule to dedicate to the online courses.

Table 9
Mean and Standard deviation of Motivation

Motivation	M	SD
I would be able to complete my study even when there are online distractions .	3.97	.90
I can set goals and objectives for learning	3.88	.82
I consider flexibility in time as an important motivating factor in taking an online class.	3.82	.81
I enjoy learning that is both interesting and challenging .	3.94	.94
I can remain motivated even though the instructor is not online at all times	3.79	.80
Overall	3.88	.79

Table 9 indicated that the overall of Motivation was rated at the ready status and item that I would be able to complete my study even when there are online distractions (e.g., friends sending emails) had the highest mean and I can remain motivated even though the instructor is not online at all times had the lowest mean. The results are consistent with Jed Rosenberg (2009) who describes the motivation is a key ingredient with online learning. It is essential for students to be highly motivated and have a positive attitude when attending online courses. Motivation will increase the student's success.

Comparison students' readiness that contribute to success in the process of e-learning according of gender was presented in table 10.

Table 10
t-test results for gender

Gender	N	M	SD	t	p
Female	89	3.79	.49	1.512	.57
Male	73	3.91	.68		
$p < .05$					

Table 10 indicated that the difference between female and male scores was not statistically sig-

nificant, although the males' mean score was higher than females' score.

There was no significant difference of the students'readiness for e-learning of graduate students majoring in educational administration as classified by gender,age, and technology experiences.

RECOMMENDATIONS

The results of this study revealed that students' readiness were , overall, ready for e-learning, however, they need to improve their readiness in Study skills, and Technology skills as the following :

The instructors should evaluate their personal readiness and important readiness for student in e-learning process, which contribute to success in e-learning process. The low students 'readiness will be motivate by online learning experience. Potential students in e-learning process could be perform well in academic performance.

The instructors and their online colleagues should offer a wide variety of technical skills and academic skills modules such as student readiness orientation and foundations for academic success modules. The modules prepare the students for the online learning experience. The students will learn how to use the online classroom to get assignments, interact with instructors and other students, and submit assigned work.

The instructors should set of rules for behaving properly online, create opportunities for more active, interactive, online interactions and communications between students and themselves in e-learning contexts. The students must be able to read and understand complex materials, to express their thoughts and ideas in writing, to read and follow instructions alone, to set a personal schedule and complete assigned work by the required dates. The students must be willing to interact regularly with their instructor.

The University should provide access to technical support through help lines or other means. Help students troubleshoot technical problems that they may encounter in distance learning.

The University should provide professional development to ensure that instructors can effectively use e-learning tools in distance education. Instructors should be comfortable with the features of any curriculum or product they use, and they need to be able to adapt their teaching strategies to take full advantage of the technology.

The University should require the capacity to respond flexibly to the continually evolving needs and opportunities associated with e-learning. There should be regular studies of how faculty are teaching and how students are learning at the University as well as the roles that existing and emerging educational technologies might fill. A review of effective support strategies within Faculties might also encourage sharing best practices not only for teaching, but also for providing students support services.

CONCLUSION

This study presented the results of a study on examine students' readiness that contribute to success in the process of e-learning . The analysis of the results showed that the students' readiness is Technology access, Motivation, Time management skills, Technology skills, and Study skills. They are important that all students feel comfortable with the process and technology of the e-learning as the willingness of learners is a key factor of a successful program. The instructors should find the effective ways for improving e-Learning for students. The instruction that is developed will be not only technologically workable but also effective from a student's readiness.

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Preservice and In-Service Teachers' Perceptions toward Technology Benefits and Integration

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ABSTRACT

This study examined preservice teacher attitudes toward and expected technology integration practices as compared to in-service teachers' attitudes toward and actual (self-reported) practice of technology integration. The preservice teachers revealed a greater level of confidence in their ability to integrate technology and more positive beliefs in the benefits of using technology to improve teaching and learning than did in-service teachers. However, these differences were not evidenced when examining perceptions on the basis of self-reported technology skill levels. Both preservice and in-service teachers who reported above average technology skills revealed significantly more positive attitudes and perceptions about technology integration than those who indicated less skill. These findings confirm the need to continue preservice and in-service initiatives that not only better prepare K-12 teachers to effectively integrate technology into the classroom, but also increase their technology skills.

Many believe that technology use by K-12 students will result in overall gains in student achievement and better preparation of students for future careers in a digital society. As a result, over $2.5 billion in federal funding have been spent on preservice and in-service teachers to better prepare them to effectively integrate technology into their instruction (U.S. Department of Education, 2007). Although positive trends have emerged from these initiatives, the overall results still fall below general expectations regarding the potential benefits of using technology in K-12 classrooms (Parsad & Jones, 2003; Swanson, 2006; U.S. Department of Education, 2007). Research has not yet clearly identified where problems may exist along the continuum from preservice teacher preparation to in-service teacher professional development. In order to address a portion of this problem, this study investigated the perceptions regarding technology integration and abilities of preservice (at the student-teacher level) and in-service teachers in order to determine possible differences that might influence technology integration efforts.

In order to investigate technology integration efforts, it is important to clarify the meaning of technology integration. The International Society for Technology in Education's (ISTE) National Education Technology Standards (NETS) states that "the integration of technology in teaching and learning is a natural, seamless act of selecting the right tool for the learning task that effectively facilitates learning, fosters self-motivated, self-regulated learning with multifaceted assessment and accountability" (ISTE, 2008). This description of technology integration will be used for this study.

When examining technology integration from this viewpoint, there have been various benefits noted in multiple research studies. For example, the use of multimedia in the classroom is becoming more prevalent due to its ability to create more positive attitudes toward higher level learning skills (Harris, 2002), its ability to produce a more hands-on, interactive learning environment that accelerates student performance (Wang, 2000), and also its ability to provide a self-paced environment in which students are free to work at varying levels (Doe, 2006).

STATEMENT OF THE PROBLEM

Research that identifies causes for infrequent or ineffective use of technology is abundant. Results of many studies have identified inadequate preparation of preservice teachers and under-prepared in-service teachers as influential factors with regard to use of technology in K-12 classrooms (Bauer & Kenton, 2005; Brinkerhoff, 2006; Russell, Bebell, O'Dwyer, & O'Conner,

2003; Wozney, Venkatesh, & Abrami, 2006). Research has suggested that properly prepared preservice and in-service teachers are more apt to utilize technology in their classroom than are under-prepared preservice and in-service teachers. Based on this premise, it would appear that if these teachers are indeed more prepared to integrate technology, then this would have a positive effect on their perceptions of the benefits of technology and technology integration and their own abilities to use technology as well. If teachers perceive themselves as prepared to use technology and perceive technology integration to be beneficial to the learning process for their students, then they would be more inclined to do so. However, although most researchers now recognize the importance positive perceptions and beliefs have on actual integration, to date very little if any research has investigated the influence these perceptions have on the actual integration practices of preservice and in-service teachers.

REVIEW OF THE RELEVANT LITERATURE

In regards to teacher perceived readiness to use and implement technology, this study focused on research from two viewpoints: preservice teacher attitudes toward and *expected* technology integration practices (Brown & Warschauer, 2006; Lipscomb & Doppen, 2004; Sheffield, 1996) and in-service teachers' attitudes toward and *actual* (self-reported) practice of technology integration (Christensen, 2002; Judson, 2006; Wozney, Venkatesh, & Abrami, 2006).

Preservice Teachers

Research has shown that the need to feel prepared and comfortable to use technology in the classroom is perhaps the most critical aspect of achieving effective technology integration practices among preservice teachers. The responsibility of properly preparing preservice teachers to integrate technology falls on the teacher preparation programs. It furthermore is the responsibility of these programs to provide preservice teachers with a comfort level in doing so while also instilling in them an understanding of the benefits of integration. Research insists that by doing this, preservice teachers will develop more positive perceptions toward technology integration. Although significant progress has been made by using coursework designed to teach integration methods, proper use of modeling through various methods, as well as through observation of proper integration techniques, often the preservice teachers remain inadequately prepared. This idea is echoed through a study in which 49 preservice teachers were surveyed concerning the importance of computers. Results indicated that although 95% of them felt that computers were 'very' important in schools, only 21% of them had ever voluntarily taken a computer course (Whetstone & Carr-Chellman, 2001). The results also revealed that preservice teachers often displayed overconfidence in using technology in the classroom, which may lead to little or no actual use of technology when preservice teachers enter the field as practicing teachers.

In-service Teachers

Research indicates that in order to incorporate technology into the classroom effectively, teachers must first have positive attitudes toward the benefits of technology and integration. So, while the use of workshops/seminars, professional development and graduate coursework is successful in preparing in-service teachers to integrate technology, researchers have learned that it is equally important to identify the perceptions and beliefs that many in-service teachers have toward technology integration (Mouza & Wong, 2009). This is especially true for negative perceptions that may hinder their integration efforts (Russell, Bebell, O'Dwyer, & O'Conner, 2003).

Additionally, Goktas, Yildirim and Yildirim (2009) found that there are other barriers such as lack of training, software/materials, skills, and hardware that play a large role in the decision of in-service teachers to integrate technology into their classroom. Al-Bataineh, Anderson, Toledo and Wellinski (2008) found that access and availability of technology were other significant barriers to using technology in the classroom. Both of these studies tended to point to increasing the budgets in this area to help eliminate some of the more important barriers to implementation of technology.

SIGNIFICANCE OF THE STUDY

Lack of effective use of technology integration is a well-documented issue within the educational arena. However, trying to identify exactly where the problems exist (preservice or in-service) in

order to make improvements can be a bit challenging if not misleading for university programs and schools in general. In an effort to identify exactly where the problems appear to be, this study focused on trying to identify the weak link and either identify the need for either more technology integration training for preservice teachers within their teacher educational programs or support the need for more professional development for in-service teachers. Thus, the following research question was utilized in this study: Do differences exist between the perceptions of preservice (at student teacher level) and in-service teachers regarding the benefits of technology for classroom instruction, the benefits for student learning, and regarding personal readiness to integrate technology into educational practices?

METHODOLOGY

Participants

There were a total of 230 participants in this study. Of those, 112 were preservice teachers from a total population of 125 and 118 were in-service teachers from a total population of approximately 309 teachers.

Preservice teachers. All preservice teachers in this sample were beginning the student teaching portion of the teacher education degree program at a mid-sized, southeast rural university with an enrollment of approximately 6,300. It is important to note that the survey had been administered prior to their actually going into the schools to student teach. Thus, they have not had that experience of being in the classroom teaching at the time the survey was administered. However, it is equally important to note that the students have been through the required technology course specifically designed to teach students to properly integrate technology in the classroom. The course also includes exposure to many of the technology related resources and/or Web sites needed to properly integrate technology. Each student is required to evaluate many integrated lessons and must create at least one fully detailed integrated lesson in their field.

Prior to student teaching, all preservice teachers were fully admitted into the teacher education program, which is accredited by the National Council for the Accreditation of Teacher Education (NCATE) and grants bachelors and masters degrees, and were in their senior year with a minimum cumulative grade point average of 2.50. Participants had completed 80% of the coursework in their endorsement area and must have completed all specialized teaching strategies courses and all reading requirements. All respondents had obtained approval for their Professional Portfolio, which included information about themselves, their experience, past employment, awards, and activities relevant to the profession as well as their philosophy of teaching. Table 1 below displays the demographic characteristics of the preservice group.

In-service teachers. The in-service teachers represented a wide variety of curriculum areas taught in grades K-12 in schools located in the same county as the university. This included two high schools, two elementary schools, two middle schools, two K-12 schools, one K-8 school, and one primary school. As of 2004, there were 208 elementary teachers and 101 secondary teachers for a total of 309 total teachers in this county. There were approximately 5,085 students total in the county school systems, which is an average of 508.5 per school. Table 2 displays the demographic characteristics of the in-service group.

As shown in the demographic tables, the majority of preservice respondents (40.2%) were middle school while the majority of in-service respondents (44.1%) were elementary. It is also important to note that while all preservice respondents were from the same university, 76.3% of the in-service respondents were also graduates from that same university. The largest percentage of preservice respondents (74.1%) were between the ages of 20-25 years old while the largest percentage of in-service respondents (32.2%) were between the ages of 46-55 years old. Additionally, the majority of both preservice (73.2%) and in-service (83.9%) respondents were female.

Instrument

The Teacher Technology Questionnaire (TTQ) (Lowther, Ross, & Alberg, 2001) was used to assess teacher perceptions about technology. There were two versions of the survey, one for preservice teachers (Preservice Teacher Technology Questionnaire (PTTQ) and one for in-service teachers (In-service Teacher Technology Questionnaire (ITTQ) (see Table 3).

Table 1
Demographic Characteristics of Preservice Respondents (N = 112)

Characteristic	f	P
Grade Level		
Elementary	35	31.3
Middle	45	40.2
Secondary	32	28.6
Age		
20 to 25 Years	83	74.1
26 to 30 Years	16	14.3
31 to 35 Years	6	5.4
36 to 45 Years	4	3.6
46 to 55 Years	3	2.7
56 and up	0	0
Race		
Caucasian	105	93.8
African American	6	5.4
Hispanic	1	.9
Asian	0	0
Other	0	0
Sex		
Male	30	26.8
Female	82	73.2
Lab Access		
Yes	101	90.2
No	11	9.8
Computers in the Cooperating Teacher's Classroom		
None	35	31.3
One	22	19.6
Two	13	11.6
Three	10	8.9
Four	14	12.5
More than Four	18	16.1
Computer Type		
No computer	4	3.6
A laptop	6	5.4
A computer station	88	78.6
A laptop and a computer station	14	12.5

Table 2
Demographic Characteristics of In-service Respondents (N = 118)

Characteristic	f	P
Grade Level		
Elementary	52	44.1
Middle	29	24.6
Secondary	37	31.4
Curriculum Area		
Math	9	7.6
Science	9	7.6
Language Arts	18	15.3
Technology/Vocational	11	9.3
Fine Arts	2	1.7
Social Studies	6	5.1
Special Education	13	11.0
Physical Education/Wellness	8	6.8
Foreign Language	2	1.7
Business	1	.8
Elementary	39	33.1
Graduate of Same University as Student Teachers		
Yes	90	76.3
No	28	23.7
Age		
20 to 25 Years	3	2.5
26 to 30 Years	11	9.3
31 to 35 Years	15	12.7
36 to 45 Years	34	28.8
46 to 55 Years	38	32.2
56 and up	17	14.4
Race		
Caucasian	117	99.2
African American	1	.8
Hispanic	0	0
Asian	0	0
Other	0	0
Sex		
Male	19	16.1
Female	99	83.9

Table 2 (continued)		
Years of Experience		
One Year	5	4.2
Two to Five Years	6	5.1
Six to Seven Years	10	8.5
Eight to Ten Years	15	12.7
Eleven to Fifteen Years	23	19.5
Fifteen or More Years	59	50.0
Lab Access		
Yes	104	88.1
No	14	11.9
Computers in the Classroom		
None	27	22.9
One	17	14.4
Two	12	10.2
Three	13	11.0
Four	23	19.5
More than Four	26	22.0
Computer Type		
No computer	2	1.7
A laptop	3	2.5
A computer station	100	84.7
A laptop and a computer station	13	11.0

Table 3
Comparison of Preservice and In-service TTQ

Preservice	In-service
Impact on Classroom Instruction	
1. My teaching will be more student-centered when technology is integrated into the lessons.	1. My teaching is more student-centered when computers are integrated into the lessons.
2. I will routinely integrate the use of computers into my instruction.	2. I routinely integrate the use of computers into my instruction.
3. Technology integration efforts have changed classroom learning activities in a very positive way.	3. Technology integration efforts have changed classroom learning activities in a very positive way.
4. My teaching will be more interactive when technology is integrated into the lessons.	4. My teaching is more interactive when computers are integrated into the lessons.
Impact on Students	
5. The use of computers increases the level of student interaction and/or collaboration.	5. The use of computers has increased the level of student interaction and/or collaboration.
6. The integration of technology positively impacts student learning and achievement.	6. The integration of technology has positively impacted student learning and achievement.
7. Most of my students will be able to capably use computers at an age-appropriate level.	7. Most of my students can capably use computers at an age-appropriate level.
8. The use of technology improves the quality of student work.	8. The use of technology has improved the quality of student work.
Teacher Readiness to Integrate Technology	
9. I know how to meaningfully integrate computers into lessons.	9. I know how to meaningfully integrate computers into lessons.
10. I am able to align technology use with standards-based curriculum.	10. I am able to align use of computers with my district's standards-based curriculum.
11. I have received adequate training to incorporate computers into my instruction.	11. I have received adequate training to incorporate computers into my instruction.
12. My computer skills are adequate to conduct classes that have students using computers.	12. My computer skills are adequate to conduct classes that have students using computers.

The Teacher Technology Questionnaire (TTQ) is a 20-item instrument designed to assess teacher *perceptions* concerning the following five constructs: *Impact on Classroom Instruction, Impact on Students, Teacher Readiness to Integrate Technology, Overall Support for Technology in the School,* and *Technical Support*. However, only three of these were addressed in the present study using a total of 12 questions: *Impact on Classroom Instruction*, *Impact on Student Learning*, and *Teacher Readiness to Integrate Technology*. Respondents used the following 5-point Likert-type scale to indicate whether they agreed or disagreed with the comments. The scale included the following options: *1 = Strongly Disagree, 2 =Disagree, 3 = Neutral, 4 = Agree* or *5 = Strongly Agree*. For the purposes of this study, it was only necessary to determine whether the participants 'agreed' or 'disagreed' with the statements and

not necessarily how 'strongly' they agreed or disagreed. Thus, for this study results for Strongly Disagree and Disagree were combined as were Agree and Strongly Agree.

The TTQ descriptions of technology tasks were developed and validated at the Center for Research in Educational Policy at the University of Memphis (Lowther, Thompson, Ross, McDonald, & Wang, 2004). Internal consistency reliability (Cronbach's alpha) results for this sample for each subscale were as follows: *Impact on Classroom Instruction* (preservice = .88; in-service = .83); for *Impact on Student Learning* (preservice = .73; in-service = .73); *Teacher Readiness to Integrate Technology* (preservice = .77; in-service = .83).

The first section, *Impact on Classroom Instruction*, consisted of four statements that address the perceived impact technology integration has on lessons and teaching styles of both the preservice and in-service teachers.

The second section, *Impact of Technology on the Students*, consisted of four statements that address the perceived impact technology use in the classroom has had on the students. Specifically, it assessed the impact on student interaction/collaboration, learning and achievement, quality of work and to how they perceive student ability to use computers at an age-appropriate level.

The third section, *Teacher Readiness to Integrate Technology*, consisted of four statements that addressed how prepared the teachers feel they are to meaningfully integrate computers into lessons. They were also asked to address their perceived abilities to align technology use with curriculum standards and if they felt they had adequate computer skills and were adequately prepared to incorporate technology into their instruction.

Procedures

The researcher contacted all 125 members of a student teacher class via email to solicit volunteers to participate in this study. The email explained the purpose of the study and provided brief details regarding the amount of time and computer equipment needed to complete the survey. The email contained a direct link to the online questionnaire. The survey site provided the Informed Consent Form and instructions for completing the questionnaire. A follow-up email was sent to each preservice teacher one week after distribution of the original email to solicit participation from those who had not yet responded and to thank those who had completed the questionnaire.

To solicit participation of at least 50-75 volunteer in-service teachers that fit the requirements of this study, an email was sent to the school system's Assistant Director who forwarded the email to the principals of all (10) schools in the district. The email consisted of a brief description of the study consent process, and the questionnaire, including an estimation of the time it should take to complete the questionnaire and its Web address. In-service teachers who agreed to participate were presented with the informed consent statement before beginning the online questionnaire and were informed that submission of the completed form indicated their willingness to participate.

Questionnaires were completed during one online session. All responses were anonymous. Once the questionnaires were completed, the results were automatically sent to a secure server. The survey instruments were administered online using Dragon Web surveys, a companion to the FileMaker Pro database software. The questionnaire was designed to prevent submission of incomplete forms. If participants attempted to submit a form with blank items, they were prompted as to which items were left blank and asked to go back and complete those items.

RESEARCH DESIGN

Data were analyzed using a Multivariate Analysis of Variance (MANOVA) to compare preservice and in-service teachers' responses to the TTQ. Specifically, data from three categories were included from the TTQ (*Impact on Classroom Instruction*, *Impact on Student Learning*, and *Teacher Readiness to Integrate Technology*).

The data were used to determine if differences existed between preservice and in-service teacher perceptions regarding the benefits of technology for classroom instruction, for student learning, and regarding personal readiness to integrate technology into educational practices (see Table 4).

Table 4
Teacher Technology Questionnaire by Group, Frequency and Percent per Response Level, Mean, and Standard Deviation by Item
Pre-service N = 112
In-service N = 118

Category and Related Items*	Group	Strongly Disagree (1) Disagree (2) n (%)		Neutral (3) n (%)		Agree (4) and Strongly Agree (5) n (%)		M (SD)	
		Pre-service	In-service	Pre-service	In-service	Pre-service	In-service	Pre-service	In-service
Impact on Classroom Instruction	Overall	26 (5.8)	84 (17.8)	85 (19.0)	119 (25.2)	337 (75.2)	269 (57.0)	3.90 (.809)	3.48 (.948)
Impact on Students	Overall	11 (2.5)	54 (11.4)	105 (23.4)	103 (21.8)	332 (74.1)	315 (66.7)	3.99 (.787)	3.69 (.881)
Readiness to Integrate Technology	Overall	23 (5.2)	59 (12.5)	59 (13.1)	93 (19.7)	366 (81.7)	320 (67.8)	4.03 (.793)	3.69 (.920)

*Preservice item differences noted in parenthesis

RESULTS

Results from a Multivariate Analysis of Variance (MANOVA) revealed an overall significant difference between preservice and in-service teachers' perceptions, Wilks's $\Lambda = .92$, $F(3, 226) = 6.67$, $p < .01$. The effect sizes as represented by partial eta squared were found to be moderate (Cohen, 1988). A summary of descriptive statistics is presented in Table 5.

Follow-up univariate analyses revealed a significant difference ($F(1, 228) = 18.601$, $p < .001$, $\Lambda^2 = .07$) between the two groups for *Impact on Classroom Instruction*. Examination of the mean scores revealed that the preservice teachers ($M = 3.90$, $SD = .81$) ($M = 3.5$, $SD = .95$) had a significantly higher level of agreement than in-service teachers that technology has a positive impact on instruction. Similar differences were shown with regard to participant perceptions of *Impact on Student Learning* ($F(1, 228) = 13.16$, $p < .001$, $\Lambda^2 = .06$). The preservice teachers revealed significantly more positive perceptions than in-service teachers about the benefits of technology for student learning (preservice $M = 4.0$, $SD = .79$; in-service $M = 3.69$, $SD = .88$).

Table 5
Multivariate/Univariate Results by Teacher Group on Impact on Classroom Instruction, Impact on Student Learning, and Teacher Readiness to Integrate Technology into Their Teaching

Source/Dependent Variable	Λ	F	df	p	η^2
Teacher Group	.919	6.667	3/226	.000*	0.081
Impact on Classroom Instruction		18.601	1/228	.000*	0.075
Impact on Student Learning		13.159	1/228	.000*	0.055
Teacher Readiness to Integrate		14.302	1/228	.000*	0.059

*$p < .01$

When examining the final component of the research question, *Teacher Readiness to Integrate Technology*, significant differences were once again revealed that favored the preservice teachers ($F(1, 228) = 14.30, p < .001, \Lambda^2 = .06$). The effect size as represented by eta squared was found to be moderate. In particular, the preservice teachers exhibited a higher agreement ($M = 4.03$, $SD = .79$) than in-service teachers ($M = 3.69$, $SD = .92$) that they were prepared to integrate technology into their teaching.

DISCUSSION

The results of this study revealed that significant differences did exist between the preservice and in-service teachers with regard to their perceptions about the benefits of educational uses of technology as well as their perceived readiness to integrate technology into their teaching. The preservice teacher (with no teaching experience) had significantly more positive agreement that technology integration efforts will change classroom activities in a very positive way in contrast to in-service teachers (with teaching experience) who reported less positive perceptions. This trend was also found when examining impressions regarding the positive impact of technology integration on student learning and achievement as the in-service teachers' responses were significantly less positive than the preservice teachers.

Technology's Impact on Students and Instruction. The preservice teachers had significantly more positive agreement that technology integration efforts will change classroom activities in a very positive way as compared to in-service teachers who reported less positive perceptions. This trend was also seen when examining perceptions regarding the positive impact of technology integration on student learning and achievement. The in-service teachers' responses were less positive than the preservice teachers'.

These findings concerning teacher perceptions are consistent with studies investigating similar questions. For example, exposure to proper integration techniques enhances preservice teachers' self-efficacy toward integration (Dexter, Doering, & Riedel, 2006; Wang et al., 2004). However, it is often difficult for teacher education programs to find opportunities for preservice teachers to observe, and more importantly to practice, effective integration techniques (Strudler, Archambault, Bendixen, Anderson, & Weiss, 2003). Thus, their perceptions frequently lack the substantiation of real-world experiences (from in-service teachers properly modeling) that impact technology integration practices. On the other hand, the perceptions of in-service teachers reflect the actual context of classroom settings and educational expectations placed on teachers. Specifically, in-service teachers are often reluctant to integrate technology because of factors such as lack of time and/or insufficient access to technology resources (Friedman, 2006; Wepner & Tao, 2002).

Readiness to Integrate Technology. The third component of the research question examined teacher perceptions of their readiness to integrate technology into their teaching. This study found that overall, preservice teachers felt more prepared than in-service teachers to integrate technology. Possible reasons for these results include increased emphasis on improving teacher preparation programs and data revealing that in-service teachers need more professional development focused on effective technology integration (Jeffs & Banister, 2006; Whetstone & Carr-Chellman, 2001).

Teacher education programs, PT3s, and other initiatives, have implemented innovative strategies to better prepare preservice teachers to use and integrate technology that have resulted in positive trends in overall teacher confidence (Beyerbach, Walsh, & Vannatta, 2001; Ertmer et al., 2003; Jeffs & Banister, 2006; Pope, Hare, & Howard, 2005; Whetstone & Carr-Chellman, 2001). The goal is that in time, these programs will produce in-service teachers who are better prepared to integrate effective uses of technology into their teaching. The results of this study suggest that the preservice teachers participated in a teacher education program that instilled greater confidence to integrate technology into their teaching. Another contributing factor could be related to age of the participants in that 88.4% of the preservice teaches were aged 30 or younger as opposed to 11.8% of the in-service teachers in that same age range. Research has shown that younger adults, often referred to as Digital Natives, have used computers and other technologies their entire lives and thus are more comfortable using and learning in this manner (Prensky, 2001).

Findings regarding in-service teacher perceptions regarding their readiness to integrate are consis-

tent with those revealed in a recent nationwide study conducted by Swanson (2006). In particular, data from 47 states indicated that the majority (67%) of the states' respondents identified professional development as the greatest technology related need. While professional development has been found to be the most needed component in raising self-efficacy levels by better preparing in-service teachers to integrate (Rother, 2004), the level of self-efficacy among in-service teachers is noted as a major influence on their actual decision to integrate (Russell et al., 2003). Results from these and other studies that addressed the role of self-efficacy and the need to feel prepared found that the use of multimedia instruction, needs-based instruction, graduate courses and various types of instructional workshops can greatly improve self-efficacy levels among in-service teachers (Adams, 2005; Albion & Ertmer, 2002; Brinkerhoff, 2006; Christensen, 2002; Cole et al., 2002; Harris, 2002; Watson, 2006; Yildirim, 2000).

As the study suggests, preservice teachers appear to have more positive perceptions than in-service teachers in the area of integration which supports previous research in which professional development was identified as a major need for in-service teachers. However, in-service teachers are not modeling integration skills to the preservice teachers that train under them which may adversely affect the positive perceptions preservice teachers develop in the teacher education program. Consequently, these favorable perceptions apparently do not follow them once they become in-service teachers. Ideally if schools provide the proper professional development and support systems to teach in-service teachers to integrate and consistently enhance their integration skills, in-service teachers may better model the use of technology and integration practice for the preservice teachers that often work with them as student teachers.

In-service teachers need to be exposed to integration methods through the use of workshops and also need to be exposed to the latest technology that will be available in their schools. They need a support system they can access if they have problems or need help. This along with proper use of technology resources in schools would provide a much better environment for in-service teachers' use of technology in a variety of ways in their classroom.

LIMITATIONS AND FUTURE RESEARCH

Limitations. The preservice teachers in this study were all from the same rural university and thus had participated in the same teacher education program. They were also all in the student teaching portion of their program. This is a limitation because the preservice sample contained little or no diversity that might be found if sampled from other universities in other parts of the country. The preservice group also provided self-reported data, which may also be different from researcher-observed or performance data. Additionally, it should also be noted that some questionnaire items asked preservice teachers in this study to "project" how they might respond to a certain situation if they were the actual teacher. This may obviously be different from what they might actually do when they become a classroom teacher.

The in-service group was based solely on volunteers. However, it is important to note that over three-fourths of the in-service volunteers were graduates of the same university as the preservice group. Only in-service teachers from a certain county in one state were asked to participate. This again inhibits diversity based on the participants all being from the same socioeconomic area, thus the results may not be indicative of the general population of preservice and in-service teachers.

Future Research. Further research involving teachers' perceptions of technology integration is needed in a number of areas. Future research should further explore opportunities by which teacher education programs may better prepare preservice teachers to integrate technology. It may also be important to conduct a follow-up study of these same preservice teachers, as they become in-service teachers, to compare their survey results in this study to their future responses to determine if they are actually integrating and using the technology skills that they "projected" themselves as using as preservice teachers. Future research may also extend this study to include a more diverse population by including other universities and/or school systems in other states.

Other important questions raised by the results of this study include: What factors affect the shift in perceptions as preservice teachers transition to in-service teachers? When does this shift in perceptions occur? What specific professional development interventions can moderate or prevent this shift in perceptions? The impact of such

professional development programs on experienced teachers' perceptions of technology use should be thoroughly evaluated.

CONCLUSION

Classroom teachers with negative perceptions of their ability to integrate technology effectively are in need of targeted professional development. Teachers holding such perceptions are not likely to use technology in their instructional practices in ways that will ultimately have a positive impact on student learning.

This study demonstrated a distinct difference in the perceptions of preparedness to use technology and potential benefits of technology use between preservice and in-service teachers. This finding has enormous implications for future research as teacher educators attempt to identify the best means by which to close this gap between the two groups. If teacher educators intend to maximize the use of technology by in-service teachers, it is important to identify factors that negatively affect teachers' technology-related perceptions as they move from their role as students to classroom teachers.

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The *You Owe Me!* Mentality: A Student Entitlement Perception Paradox

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ABSTRACT

College and University faculty members routinely share stories and anecdotes about students who appear to have an unrealistic expectation of entitlement when it comes to following the requirements and dictates of classroom and collegiate rigor (Gill, 2009; Lippman, Bulanda, Wagenaar, 2009; Roosevelt, 2009). Faculty stories and discussions include narratives about students who skip class (Glater, 2006); invest minimal effort into their studies (Greenberger, Lessard, Chuansheng, & Farrugia, 2008); believe they should be treated as customers rather than as students (Ansburg, 2001; Benton, 2006; Lippman et al.; Snare, 1997); or believe that a quid pro quo relationship exists whereby tuition is a guaranteed purchase of good grades (Ansburg, 2001; Benton, 2006). The continuous regularity with which faculty members report events of student entitlement expectations coupled with the researchers own brushes with student entitlement issues and unreasonable student expectations begs the question as to whether such issues are anomalies or pervasive, ergo, the research quest to determine if students have unrealistic entitlement expectations began. The research question and premise of this research paper is: "Do students have unrealistic academic entitlement expectations?"

INTRODUCTION

College and University faculty members routinely share stories and anecdotes about students who appear to have an unrealistic expectation of entitlement when it comes to following the requirements and dictates of classroom and collegiate rigor (Gill, 2009; Lippman, Bulanda, Wagenaar, 2009; Roosevelt, 2009). Faculty stories and discussions include narratives about students who skip class (Glater, 2006); invest minimal effort into their studies (Greenberger, Lessard, Chuansheng, & Farrugia, 2008); believe they should be treated as customers rather than as students (Ansburg, 2001; Benton, 2006; Lippman et al.; Snare, 1997); or believe that a quid pro quo re-

lationship exists whereby tuition is a guaranteed purchase of good grades (Ansburg, 2001; Benton, 2006). The continuous regularity with which faculty members report events of student entitlement expectations coupled with the researchers own brushes with student entitlement issues and unreasonable student expectations begs the question as to whether such issues are anomalies or pervasive, ergo, the research quest to determine if students have unrealistic entitlement expectations began. The research question and premise of this research paper is: "Do students have unrealistic academic entitlement expectations?"

From a psychological perspective, entitlement has been viewed by researchers as a component of narcissism (Campbell, Bonacci, Sheldon, Exline & Bushman, 2004). Entitlement includes the observation that the individual "deserves" something or that the world or society owes the individual something (Glater, 2006), even if the individual fails to fulfill societal or professional compacts. Individuals who exhibit an attitude of self-entitlement tend to adopt pervasive "I'm special," self-centered, and me-centric attitudes. As such, they believe that when they have a "want," it should be filled immediately (Lippman, et al. 2009) or if they believe they deserve something (such as the bending or dismissal of rules or objectives) they have an automatic unrestricted right to receive their deserved entitlement.

Historically self-entitlement issues are discussed in regard to customer-business or citizen-government relationships and the self-entitlement paradigm is infrequently perceived as a condition in student-college/student-university relationships. However, recent anecdotal evidence suggests that academic institutions are not sheltered from the impact of the psychological self-entitlement paradigm. This paper examines if the societal self-entitlement belief system has entered into the world of post-secondary education in the form of a student academic entitlement paradigm. Finally, if this student belief system is present does it directly foster a student mindset whereby such entitlements, if apparent, are applied and present within the higher education academic environment (Campbell, et al. 2004; Greenberger, et al. 2008).

For the purpose of this paper and in order to reduce the danger of miscommunication, clear articulation and recognition of the concepts (1) psychological entitlement and (2) academic entitlement are paramount. Therefore, the term psychological entitlement is defined as "a pervasive sense that one deserves more and is entitled to more than others" (Campbell, et al. 2004, p. 30). This research paper will adopt the concept of academic entitlement which is the state of entitlement applied within an academic environment (Campbell et al. 2004; Greenberger, et al. 2008).

Previously published discussions of academic entitlement have focused predominantly on multiple types of student activities and behaviors, the consequential implications of these behaviors in the classroom setting and the direct causal repercussions of academic entitlement on the administration of colleges and universities. As such, Ansburg (2011) identified that there is an inherent belief among students and higher education administration that students are "customers" or "consumers" and, as such, are entitled to considerations and concessions that would be expected within the traditional retail business model. Any analogy that students are customers implies the use of the general customer/business model, which posits that the customer is "always right." It is likely that an "always right" mindset can lead to or foster a student's belief that grades are product of education to be attained by purchase. The price or result of said sale thus expressly creates a quid pro quo transaction, namely, tuition in exchange for a degree rather than tuition in exchange for the introduction to knowledge and the opportunity to learn, understand, and practice said knowledge (Snare, 1997). The customer-business perception supports the implication that the student is a customer (because money/tuition has been paid) therefore, education is guaranteed (Ansburg, 2001; Benton, 2006; Correa, 2006) and good grades will be awarded through the business-customer relationship/process. It is highly likely that any student belief in the customer-business model replacing the student-academic institution model serves as the foundation for a belief in academic entitlement.

The academic entitlement belief system (student as a customer) has created a paradigm, which shapes the students' mindset, the student's attitude, and consequently the students perceptions (Lippman, et al. 2009). The paradigm occurs when the student believes they are a customer paying for the delivery of a given service or product (which in this particular case is an A or a 4.0 GPA) (Ansburg, 2001). The student academic

entitlement belief systems contradicts the education student-academic model and in fact, is diametrically opposed to the proven and successful education student academic model. Instead, the academic entitlement belief system implies that the product or service is (in this case, a degree), is not earned by academic application, but instead has been purchased in a consumer transaction. The "student as a customer" attitude can significantly impact the academic landscape by changing the existing academic model into one in which colleges and universities are not institutions of higher learning, but businesses providing a given commodity which may be purchased rather than earned (Correa, 2006).

It is reasonable to expect the "student as a customer" concept to be accepted, in limited fashion for transactional issues involving students and academic administration. Within these transactions, the student is indeed a customer who has a reasonable expectation of quality service and courtesy. Some of these administrative transactions are items such as tuition billing, student employment, billeting, and meal services. However, when this belief moves (student as a customer) into the academic arena, students may carry the belief of self-entitlement/academic entitlement into the classroom, where it can easily become the status quo, via which the service (i.e., education/knowledge) is something easily attained by purchase rather than by academic pursuit and where professors are merely facilitators delivering a product (i.e., education/knowledge). Under the customer-business model, professors cease to be educators and become service delivery employees who may run the risk of being disciplined (or fired) for displeasing the customer (Benson, 2006). This belief coupled with college/university administrations' expectations and increased focus on student retention increasingly germinates and perpetuates a negative student/professor dynamic. The traditional student/dynamic is replaced with a negative student/professor dynamic, which, diminishes the quality of education and compromises the integrity of student learning.

Student self-entitlement/academic entitlement is likely further fostered in the eyes of faculty by the customer's (i.e., the student's) ability to utilize end-of-course evaluations as a weapon to punish or hurt faculty who, students believe, have not fulfilled the student's expectations or answered their demands. Traditionally the end of course evaluation has three areas of focus, the first area of focus being evaluation of the curriculum and course itself, the second being assessment of the environment in which the course was held, and third the evaluation and assessment of the faculty member. While the faculty evaluation/assessment portion of the end of course evaluation is but one third of the document, the common perception is that this is the most important part of the end of course survey and the remainder of the survey is superfluous.

There appears to be a common belief, although not fully substantiated through research, that when students receive higher grades, higher faculty evaluations follow (Brodie, 1998; Needham, 1978). Professors share a common belief that there is a direct correlation between giving good grades and receiving good end-of-course evaluations (Krautman & Sander, 1999) regardless of, if a students' academic learning and subsequent assessments (assignments, quizzes, or work) are not deserving of a good grade. Conversely, students have expressed the belief that they have the right to potentially coerce professors into giving good grades through the implied withholding of good end of course faculty evaluations (Boysen, 2008; Ellis, Burke, Lomire, & McCormack, 2003; Greenwald & Gilmore, 1997; Heckert, Latier, Ringwald-Burton & Drazen, 2006; Lippman et al, 2009; & Snare, 1997). As the practice of academic institutions soliciting student feedback about the quality of course material, the effectiveness of the course, and finally of instructor performance through the use of end-of-course surveys/evaluations has increased, the belief among students and faculty has become more prevalent and common place that end of course surveys/evaluations may be used as a weapon against their professors, especially if the student perceives that they have been treated poorly by their professor. Furthermore, a pervasive belief has been fostered that the end of course faculty evaluation may be used by higher education administration as the sole means of professor performance evaluation, as a justification for decisions to grant or deny tenure or to stall promotions or as a crutch for justification in salary decisions. The power of the end of course evaluation are believed to be so powerful and so highly regarded by higher education administrators that the information gathered from the end of course surveys may be used by the university administrators to determine which professors are recognized as successful in

their work or the information drawn from the end of course surveys may be used as a primary culling device to determine which professors stay employed within the academic institution (Aleamoni, 1999, Benton, 2006; Ellis, Burke, Lomire, & McCormack, 2003: Neath, 1996; & Wachtel, 1998).

The impact of the student as customer attitude (which is perpetuated by the use of end of course surveys) has apparently created a prevailing mindset and expectation among students that they are entitled to satisfaction, regardless of the work invested; "if I work hard, I deserve a grade" (Gill, 2009, Roosevelt, 2009; Trout, Platt, & Crumbley, 1997). This may lead students to have inflated preconception about the grade they should earn for a class or course (possibly an A?), and in turn, preconceived expectation that they will receive an A regardless of their effort, or quality of academic product. Consequently, such beliefs creates the academic entitlement expectation, in which credit is awarded for doing "something" (Ciania et al, 2008; Lippman et al. 2009; Svuanum & Bigatti, 2006) even when that "something" does not fulfill academic requirements.

While only limited research has been conducted on student entitlement expectations, one major study conducted by Greenberger, et al. in 2008 reported that one third of surveyed students believed that they should receive a final grade of "B" for attending lectures and classes regularly. This same study reported 40% of surveyed students thought they should receive a final grade of "B" if they only finished their reading (Greenberger, et al. 2008). In separate research, (Gill, 2009) it was reported that students expressed the belief that they should earn a grade of "B" by only attending lectures and doing the assigned readings. Further studies have discovered that students also have expressed the belief that if they attend class and turn in homework (on time), these actions alone and not the quality of the assignment outcome assessments, should guarantee that they will not fail a course (Hansen, 1991). Surprisingly, students have further reported that the quality of outcome assessments (i.e., assignments, quizzes, and exams) is trivial in grade determination. Roosevelt (2009) cited one student as commenting that "I think putting in a lot of effort should merit a high grade. What else is there really than the effort you put in?"

Prior research indicates that students expect equal-level familiarity with professors rather than accept that professors and instructors are not the students' peers. As a consequence, when familiarity expectations are not met, students no longer see a need to respect the faculty-student relationship. In fact, respect diminishes when students expect professors to go to exceptional lengths to accommodate all their needs, wants, desires, and preferences (Gill, 2009; Glater, 2006; Lippman et al. 2009). Subsequently, the student's view is one whereby they demand certain accommodations, which leads to an environment where student respect for faculty is severely diminished (Benton, 2006, Ciani et al. 2008; Hansen, 1991, Landrum 1999, Lippman et al. 2009). As familiarity, expectations, and student academic entitlement expectations increase, the likelihood of a negative confrontation between student and faculty, in addition to student backlash via negative faculty evaluations, will become more commonplace. From the existing research it can be extrapolated that student academic entitlement attitudes appear to give students the idea that they have permission to challenge professors on any and all issues, regardless of intent, content, or supporting validation. The research clearly indicates that as the level of student academic entitlement increases, the potential for students to become argumentative and aggressive increases exponentially (Lippman, et al. 2009).

This study is not intended to imply that students are not entitled to respect, courtesy, and the opportunity for a high quality educational experience (as stipulated by an educational contract with the university). Students can rightly expect their educational experience to be delivered via quality textbooks; informative lectures, excellent professorial interaction, an extensive research database along with an academic rich library, and finally, clean and safe facilities. It cannot be underemphasized that it is the responsibility of the institution of higher learning to provide an environment that facilitates a strong and robust learning experience. The research will reveal a snapshot in time whereby student perceptions are recorded and analyzed to explore the paradigm of student academic entitlement.

METHOD

Sample

A survey was administered across a target population of 21,177 students which included individuals in the graduate program (500 and 600 level classes), the baccalaureate program (300 and 400 level classes), and the associate program (100 and 200 level classes) for the school of business of a large for-profit online academic institution. The survey was strictly voluntary and elicited responses from 970 undergraduate students and 296 graduate students. Of the 970 undergraduate students 57% were in the associate program, and 43% were in the baccalaureate program. The survey was made available for 30 days during an active semester in the late spring and early summer of 2010.

Results

Results of this survey cannot be examined in detail without first describing general response data to the survey questions on academic entitlement shown in Table 1. Among the more highly-endorsed items was the item "Students should expect to take all exams on or before exam deadlines" (94.3%), "The amount of effort a student puts into a course should be recognized and rewarded" (93.1%), and "Teachers award me the grades I deserve" (90.1%). Among the lowest endorsed items was the item "I should be able to turn in an assignment late, without penalty, if the assignment due date interfered with my personal plans" (7.7%), and "When exam grades are lower than I expected the fault lies primarily with the professor" (6.8%).

Table 2 identifies results from an exploratory factor analysis. Two main components can be culled from the results, particularly when reviewing the survey items that were loaded most heavily (>.5) on each component identified. Component 1, accounts for 21.449% of the variance of the extraction of sums squared loadings and provides insight into the "participation" elements of student entitlement. Conversely, component 3, accounts for 7.858% of the variance of the extraction of sums squared loadings, provides insight into the "effort" elements of student entitlement. Components 1 and 3 are identified as Partgrp and Efftgrp respectively from this point forward as they become the primary constructs for further analysis and testing. A test for Cronbach's Alpha presented a result of .81 and revealed a high level of consistency between responses on the constructs.

A summed score of all items for each construct were utilized to create a split half population based on the mean within the construct for further analysis. The effort construct was separated into effort groups (hereafter referred to as EfftGrp1 and EffrGrp2). EfftGrp1 contains responses that were below the mean and EfftGrp2 contained responses above the mean. The participation construct was separated into participation groups (hereafter referred to as PartGrp) and labeled PartGrp1 and PartGrp2. PartGrp1 contained responses below the mean and PartGrp2 contained responses above the mean. Additionally, a series of t-tests were conducted using the groups established within each construct measured against the remaining variables in the dataset. The purpose was to determine whether or not there are differences in student characteristics that might contribute to the expectations represented.

Statistically significant differences were found within the EfftGrp construct, particularly in the areas of Sex, Age, Ethnic background, and cumulative GPA. Additionally statistically significant differences within the PartGrp construct were found primarily in the areas of Sex, Age, Ethnic background, United States citizenship, Level in program and cumulative GPA. Complete statistical output can be located in Table 4.

DISCUSSION

Potential Economic Impact on Institutions of Higher Learning as AE Perceptions Change

Institutions of higher education are not dissimilar to any other business organization and recognize that the quality of the organization is judged by its ability to meet or exceed consumer/customer expectations. The purpose here is not to debate or argue the merits of the student-consumer analogy, but rather to note how customers who have false expectations may quickly become dissatisfied customers, which may in turn impact the bottom line of the organization (Sheth and Mittal, 1996). Clearly, students' perceptions and

Table 1
Percentage of Participants Endorsing Academic entitlement items (slightly agree, agree, or slightly agree)

Code	Academic Entitlement Question	% Endorsers
Rules	1. Class rules for discussions and assignments are designed to help increase my learning.	88.3
TrHard	2. If I explained to my professor that I am trying hard, I think he/she should give me some consideration with respect to my course grade.	65.8
ApptCncl	3. If the professor cancels an appointment with me on the same day we were supposed to meet, I would rate that experience as (scale utilized was very negative, negative, neutral, somewhat positive, positive)	7.4 positive 44.3 negative 48.3 neutral
ReadGrd	4. If I have completed most of the reading for a class, I deserve at least a grade of _____ in that course. (scale utilized was A, B, C, D, F)	80.1 C or higher 19.9 D or lower
PostFrq	5. As long as I'm learning it should not matter when or how often I post on the discussion board.	31.0
PartGrp	6. If I have participated in 70% or more of the course activities, I deserve at least a grade of _____in that course (scale utilized was A, B, C, D, F).	83.0 C or higher 17.0 D or lower
GrdDsrvd	7. Teachers award me the grades I deserve.	90.1
VacAllow	8. If I have scheduled a vacation or other trip important to me that occurs at the same time as an exam, I should be able to reschedule the exam after my return at a time and date convenient to me.	43.8
EfftFwd	9. The amount of effort a student puts into a course should be recognized and rewarded.	93.1
ProfAllow	10. If my professional schedule is very busy during the week an exam must be taken, the professor should be flexible and allow me to take the exam when my professional workload decreases even if the exam deadline has passed.	40.3
DBFocus	11. Discussion board grades should focus more on my participation than on the quality of my answers to any questions asked.	28.9
LowGrade	12. When exam grades are lower than I expected, the fault lies primarily with the professor.	6.8
EmailRsp	13. I expect my professor will respond to my email messages within _____. (scale utilized was 4 hours or less, 8 hours, 12 hours, 24 hours, 48 hours, 72 hours)	83.3 =<24hrs 16.7 >24hrs
ExtraCrd	14. On those occasions when my final course grade is lower than I expected, the professor should be willing to allow me to do an additional assignment for a better grade.	54.7
ExamDate	15. Students should expect to take all exams on or before exam deadlines.	94.3
AdptRule	16. If I don't like the class rules or assignment instructions I should be able to adapt them to suit my personal needs.	13.1
OffResp	17. When I leave my professor a phone message/office posting it is reasonable to expect them to respond within _____. (scale utilized was 4 hours or less, 8 hours, 12 hours, 24 hours, 48 hours, 72 hours)	82.7 =<24hrs 17.3 >24hrs
ExtraAsg	18. In the interest of fairness, additional assignments to increase grades should not be allowed.	40.3
MeetTime	19. A professor should be willing to meet with me at a time that works best for me, even if it is inconvenient for the professor.	16.4
LateProf	20. I should be able to turn in an assignment late, without penalty, if the assignment due date interfered with my personal plans.	7.7
LatePers	21. I should be able to turn in an assignment late, without penalty, if the assignment due date interfered with my professional schedule.	31.7
StudCust	22. I feel that the professor should recognize me as a customer and interact with me accordingly.	44.9

Table 2
Exploratory Factor Analysis Results

	Component						
	1	2	3	4	5	6	7
Rules	.133	-.099	.424	.490	-.345	-.039	-.019
TryHard	.298	.180	-.552	-.180	.205	.028	.022
ApptCncl	-.008	-.334	.379	.096	.299	-.404	.406
ReadGrd	.432	.360	-.311	.197	-.396	-.157	.220
PostFrq	.531	-.178	-.036	.009	-.062	-.198	-.164
PartGrd	.508	.302	-.297	.285	-.301	-.162	.141
GrdDsrvd	.288	-.248	.300	.406	-.225	-.005	.047
VacAllow	.638	-.193	.011	-.119	.095	-.132	.082
EfftRwd	.218	.179	-.360	.173	.316	-.416	.287
ProfAllow	.710	-.189	-.004	-.161	.220	-.099	-.015
DBFocus	.550	.012	-.234	.020	-.198	.124	-.111
LowGrade	.509	-.132	.076	-.197	-.081	-.097	.207
EmailRsp	.302	.743	.485	-.040	.159	.043	-.001
ExtraCrd	.623	-.011	-.106	.309	.353	.186	-.112
ExamDate	.364	-.198	.179	.054	-.138	.132	.146
AdptRule	.526	.101	-.113	-.183	-.260	.244	.018
OffResp	.333	.730	.491	-.047	.176	.014	-.012
ExtraAsg	.406	-.083	-.088	.557	.382	.195	-.296
MeetTime	.445	-.048	.227	-.368	-.105	.025	.157
LateProf	.663	-.187	.122	-.269	-.106	.072	-.118
LatePers	.694	-.244	.146	-.134	.136	.039	-.152
StudCust	.002	-.091	-.057	.112	.153	.633	.658

Extraction Method: Principal Component Analysis, 7 components extracted

Table 3
Total Variance Explained

	Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %
1	4.179	21.449	21.449
2	1.836	8.347	29.796
3	1.729	7.858	37.653
4	1.360	6.180	43.833
5	1.231	5.598	49.431
6	1.039	4.725	54.155
7	1.024	4.653	58.809

Extraction Method: Principal Component Analysis

expectations must be managed and framed just as they are for "customers" in any other industry.

As opposed to commercial and non-education industries, institutions of higher education (whether profit or non-profit) have a different business challenge because the institution of higher education must answer to many more stakeholders than the traditional business entity. The institution of higher learning has students who are in some areas customers and in other areas of the university students and the institution of higher learning has external stakeholders(who will be the final down-line consumer) to consider. In service to all of the institutions stakeholders, it is imperative that institutions of higher education take into consideration the opinions and perceptions of the final down –line consumers; which are the businesses that hire their graduates and of society at large. The successful post-secondary institution must manage their stakeholder rela-

Table 4
Summary of t-test results

EfftGrp

1. A *t* test revealed a statistically reliable difference between the mean of Sex of the student that the EfftGrp1 has (M = 1.27, s = .446) and that the EfftGrp2 has (M = 1.21, s = .405), $t(732.876) = 2.487$, $p = .013$, $\alpha = .05$.
2. A *t* test revealed a statistically reliable difference between the mean of Age of the student that the EfftGrp1 has (M = 4.33, s = 1.308) and that the EfftGrp2 has (M = 4.15, s = 1.243), $t(772.728) = 2.36$, $p = .019$, $\alpha = .05$.
3. A *t* test revealed a statistically reliable difference between the mean of Ethnic of the student that the EfftGrp1 has (M = 4.83, s = 2.101) and that the EfftGrp2 has (M = 4.54, s = 2.27), $t(865.162) = 2.179$, $p = .030$, $\alpha = .05$.
4. A *t* test failed to reveal a statistically reliable difference between the mean of English of the student that the EfftGrp1 has (M = 1.95, s = .219) and that the EfftGrp2 has (M = 1.95, s = .224), $t(1152) = .193$, $p = .847$, $\alpha = .05$.
5. A *t* test failed to reveal a statistically reliable difference between the mean of USCit of the student that the EfftGrp1 has (M = 1.90, s = .304) and that the EfftGrp2 has (M = 1.91, s = .284), $t(1167) = .785$, $p = .433$, $\alpha = .05$.
6. A *t* test failed to reveal a statistically reliable difference between the mean of Mode of the student that the EfftGrp1 has (M = 2.98, s = .172) and that the EfftGrp2 has (M = 2.97, s = .186), $t(1163) = .658$, $p = .511$, $\alpha = .05$.
7. A *t* test failed to reveal a statistically reliable difference between the mean of LevelGp of the student that the EfftGrp1 has (M = 1.79, s = .763) and that the EfftGrp2 has (M = 1.76, s = .789), $t(1172) = .489$, $p = .625$, $\alpha = .05$.
8. A *t* test failed to reveal a statistically reliable difference between the mean of ParEdLev of the student that the EfftGrp1 has (M = 4.23, s = 1.931) and that the EfftGrp2 has (M = 4.27, s = 1.914), $t(1171) = .329$, $p = .742$, $\alpha = .05$.
9. A *t* test revealed a statistically reliable difference between the mean of Rules that the EfftGrp1 has (M = 2.46, s = 1.661) and that the EfftGrp2 has (M = 1.92, s = 1.124), $t(588.006) = 5.844$, $p = .000$, $\alpha = .05$.
10. A *t* test revealed a statistically reliable difference between the mean of ApptCncl that the EfftGrp1 has (M = 3.59, s = .842) and that the EfftGrp2 has (M = 3.34, s = .846), $t(1165) = 4.731$, $p = .000$, $\alpha = .05$.
11. A *t* test revealed a statistically reliable difference between the mean of ReadGrd that the EfftGrp1 has (M = 2.96, s = 1.007) and that the EfftGrp2 has (M = 3.30, s = .849), $t(1149) = 5.977$, $p = .000$, $\alpha = .05$.
12. A *t* test revealed a statistically reliable difference between the mean of PostFrq that the EfftGrp1 has (M = 2.56, s = 1.575) and that the EfftGrp2 has (M = 2.94, s = 1.544), $t(1164) = 3.966$, $p = .000$, $\alpha = .05$.
13. A *t* test revealed a statistically reliable difference between the mean of PartGrd that the EfftGrp1 has (M = 2.84, s = .734) and that the EfftGrp2 has (M = 3.11, s = .621), $t(682.643) = 6.264$, $p = .000$, $\alpha = .05$.
14. A *t* test failed to reveal a statistically reliable difference between the mean of GrdDsrvd that the EfftGrp1 has (M = 2.06, s = 1.273) and that the EfftGrp2 has (M = 2.00, s = 1.084), $t(697.927) = .858$, $p = .391$, $\alpha = .05$.
15. A *t* test revealed a statistically reliable difference between the mean of VacAllow that the EfftGrp1 has (M = 2.88, s = 1.496) and that the EfftGrp2 has (M = 3.30, s = 1.482), $t(1166) = 4.578$, $p = .000$, $\alpha = .05$.
16. A *t* test revealed a statistically reliable difference between the mean of EfftRwd that the EfftGrp1 has (M = 4.69, s = 1.169) and that the EfftGrp2 has (M = 5.08, s = .916), $t(656.487) = 5.899$, $p = .000$, $\alpha = .05$.
17. A *t* test revealed a statistically reliable difference between the mean of ProfAllow that the EfftGrp1 has (M = 2.71, s = 1.413) and that the EfftGrp2 has (M = 3.29, s = 1.409), $t(1169) = 6.637$, $p = .000$, $\alpha = .05$.
18. A *t* test revealed a statistically reliable difference between the mean of DBFocus that the EfftGrp1 has (M = 2.53, s = 1.309) and that the EfftGrp2 has (M = 3.00, s = 1.351), $t(1161) = 5.722$, $p = .000$, $\alpha = .05$.
19. A *t* test revealed a statistically reliable difference between the mean of LowGrade that the EfftGrp1 has (M = 1.85, s = .921) and that the EfftGrp2 has (M = 2.07, s = .939), $t(1167) = 3.678$, $p = .000$, $\alpha = .05$.
20. A *t* test failed to reveal a statistically reliable difference between the mean of EmailRsp that the EfftGrp1 has (M = 3.15, s = .900) and that the EfftGrp2 has (M = 3.20, s = 1.001), $t(881.145) = .746$, $p = .456$, $\alpha = .05$.
21. A *t* test revealed a statistically reliable difference between the mean of ExtraCrd that the EfftGrp1 has (M = 3.15, s = 1.482) and that the EfftGrp2 has (M = 3.74, s = 1.395), $t(763.484) = 6.661$, $p = .000$, $\alpha = .05$.
22. A *t* test failed to reveal a statistically reliable difference between the mean of ExamDate that the EfftGrp1 has (M = 1.85, s = 1.055) and that the EfftGrp2 has (M = 1.84, s = .786), $t(626.293) = .240$, $p = .810$, $\alpha = .05$.
23. A *t* test revealed a statistically reliable difference between the mean of AdptRule that the EfftGrp1 has (M = 1.91, s = 1.190) and that the EfftGrp2 has (M = 2.22, s = 1.260), $t(834.478) = 4.113$, $p = .000$, $\alpha = .05$.
24. A *t* test failed to reveal a statistically reliable difference between the mean of OffResp that the EfftGrp1 has (M = 3.19, s = .930) and that the EfftGrp2 has (M = 3.21, s = 1.026), $t(866.937) = .397$, $p = .692$, $\alpha = .05$.
25. A *t* test revealed a statistically reliable difference between the mean of ExtraAsg that the EfftGrp1 has (M = 3.50, s = 1.547) and that the EfftGrp2 has (M = 3.75, s = 1.460), $t(766.873) = 2.701$, $p = .007$, $\alpha = .05$.
26. A *t* test revealed a statistically reliable difference between the mean of MeetTime that the EfftGrp1 has (M = 2.33, s = 1.060) and that the EfftGrp2 has (M = 2.51, s = 1.126), $t(835.658) = 2.738$, $p = .006$, $\alpha = .05$.
27. A *t* test revealed a statistically reliable difference between the mean of LateProf that the EfftGrp1 has (M = 1.85, s = .978) and that the EfftGrp2 has (M = 2.03, s = 1.006), $t(1153) = 3.005$, $p = .003$, $\alpha = .05$.

Table 4 (continued)
Summary of t-test results

1. A *t* test revealed a statistically reliable difference between the mean of LatePers that the EfftGrp1 has (M = 2.51, s = 1.336) and that the EfftGrp2 has (M = 2.85, s = 1.417), $t(1161) = 4.113$, $p = .000$, $\alpha = .05$.
2. A *t* test failed to reveal a statistically reliable difference between the mean of StudCust that the EfftGrp1 has (M = 3.16, s = 1.476) and that the EfftGrp2 has (M = 3.25, s = 1.484), $t(1119) = .987$, $p = .324$, $\alpha = .05$.
3. A *t* test revealed a statistically reliable difference between the mean of CumGPA that the EfftGrp1 has (M = 3.5264, s = .71267) and that the EfftGrp2 has (M = 3.3084, s = .96785), $t(287.485) = 2.246$, $p = .025$, $\alpha = .05$.

PartGrp

1. A t test revealed a statistically reliable difference between the mean of Sex of the student that the PartGrp1 has (M = 1.20, s = .398) and that the PartGrp2 has (M = 1.27, s = .442), t(1002.943) = 2.672, p = .008, $\alpha = .05$.
2. A t test revealed a statistically reliable difference between the mean of Age of the student that the PartGrp1 has (M = 4.31, s = 1.205) and that the PartGrp2 has (M = 4.05, s = 1.311), t(1100) = 3.441, p = .001, $\alpha = .05$.
3. A t test revealed a statistically reliable difference between the mean of Ethnic of the student that the PartGrp1 has (M = 4.82, s = 2.139) and that the PartGrp2 has (M = 4.41, s = 2.301), t(1015.853) = 3.045, p = .002, $\alpha = .05$.
4. A t test failed to reveal a statistically reliable difference between the mean of English of the student that the PartGrp1 has (M = 1.96, s = .200) and that the PartGrp2 has (M = 1.93, s = .252), t(915.995) = 1.867, p = .062, $\alpha = .05$.
5. A t test revealed a statistically reliable difference between the mean of USCit of the student that the PartGrp1 has (M = 1.92, s = .265) and that the PartGrp2 has (M = 1.88, s = .321), t(959.077) = 2.267, p = .024, $\alpha = .05$.
6. A t test failed to reveal a statistically reliable difference between the mean of Mode of the student that the PartGrp1 has (M = 2.98, s = .140) and that the PartGrp2 has (M = 2.96, s = .227), t(783.753) = 1.705, p = .089, $\alpha = .05$.
7. A t test revealed a statistically reliable difference between the mean of LevelGP of the student that the PartGrp1 has (M = 1.72, s = .761) and that the PartGrp2 has (M = 1.85, s = .798), t(1104) = 2.934, p = .003, $\alpha = .05$.
8. A t test failed to reveal a statistically reliable difference between the mean of ParEdLev of the student that the PartGrp1 has (M = 4.35, s = 1.859) and that the PartGrp2 has (M = 4.14, s = 1.987), t(1103) = 1.761, p = .079, $\alpha = .05$.
9. A t test revealed a statistically reliable difference between the mean of Rules that the PartGrp1 has (M = 2.01, s = 1.436) and that the PartGrp2 has (M = 2.21, s = 1.239), t(1098) = 2.485, p = .013, $\alpha = .05$.
10. A t test revealed a statistically reliable difference between the mean of TryHard that the PartGrp1 has (M = 3.62, s = 1.442) and that the PartGrp2 has (M = 4.20, s = 1.280), t(1087.341) = 7.001, p = .000, $\alpha = .05$.
11. A t test failed to reveal a statistically reliable difference between the mean of ApptCncl of the student that the PartGrp1 has (M = 3.43, s = .812) and that the PartGrp2 has (M = 3.40, s = .859), t(1099) = .623, p = .533, $\alpha = .05$.
12. A t test revealed a statistically reliable difference between the mean of ReadGrd that the PartGrp1 has (M = 2.98, s = .934) and that the PartGrp2 has (M = 3.42, s = .832), t(1096) = 8.122, p = .000, $\alpha = .05$.
13. A t test revealed a statistically reliable difference between the mean of GrdDsrvd that the PartGrp1 has (M = 1.85, s = 1.114) and that the PartGrp2 has (M = 2.24, s = 1.151), t(1098) = 5.694, p = .000, $\alpha = .05$.
14. A t test revealed a statistically reliable difference between the mean of EfftRwd that the PartGrp1 has (M = 4.83, s = 1.102) and that the PartGrp2 has (M = 5.09, s = .920), t(1100.288) = 4.340, p = .000, $\alpha = .05$.
15. A t test revealed a statistically reliable difference between the mean of EmailRsp that the PartGrp1 has (M = 3.07, s = .920) and that the PartGrp2 has (M = 3.32, s = 1.002), t(1017.552) = 4.313, p = .000, $\alpha = .05$.
16. A t test revealed a statistically reliable difference between the mean of ExamDate that the PartGrp1 has (M = 1.62, s = .845) and that the PartGrp2 has (M = 2.08, s = .809), t(1069.263) = 9.254, p = .000, $\alpha = .05$.
17. A t test revealed a statistically reliable difference between the mean of OffResp that the PartGrp1 has (M = 3.08, s = .918) and that the PartGrp2 has (M = 3.37, s = 1.050), t(988.786) = 4.754, p = .000, $\alpha = .05$.
18. A t test revealed a statistically reliable difference between the mean of ExtraAsg that the PartGrp1 has (M = 3.27, s = 1.482) and that the PartGrp2 has (M = 4.13, s = 1.371), t(1078.327) = 9.885, p = .000, $\alpha = .05$.
19. A t test revealed a statistically reliable difference between the mean of MeetTime that the PartGrp1 has (M = 2.18, s = 1.001) and that the PartGrp2 has (M = 2.79, s = 1.135), t(991.602) = 9.206, p = .000, $\alpha = .05$.
20. A t test failed to reveal a statistically reliable difference between the mean of StudCust of the student that the PartGrp1 has (M = 3.25, s = 1.492) and that the PartGrp2 has (M = 3.21, s = 1.459), t(1052) = .395, p = .693, $\alpha = .05$.
21. A t test revealed a statistically reliable difference between the mean of CumGPA that the PartGrp1 has (M = 3.4954, s = .83176) and that the PartGrp2 has (M = 3.2654, s = .93348), t(220.384) = 2.121, p = .035, $\alpha = .05$.

tionship with the student, they must manage their stakeholder relationship with the future employers of their students and of society at large and they must manage the relationship between the student and their future employers and society at large.

While it may be posited that the higher learning institutions down-line final consumers are even more significant than those of the institution's active students, given the situation, it is in the best interest of the learning institution and of its students and down the line consumers, that the institution carefully monitors, balances, and maintains the needs, wants, and desires of all consumers, (immediate and down line). Within higher-education, faculty and administrators must recognize that students are not necessarily the best judges of academic quality and that students focus almost exclusively on short-term objectives of academic entitlement. This short term objective may cloud the student's awareness of how important it is to obtain the skills and knowledge that are required of college graduates when it becomes time for the student to become the executive who is responsible for fulfilling the needs, wants, and desires of business, industry and society at large. Regardless of student intent or objective, institutions of higher learning must actively manage the expectations and perceptions of their students to fulfill the societal mandate.

Society's mandate for higher education means introducing new students (in simple and yet detailed terms) to the university and to the universities expectations and requirements and clearly explain and introduce the students to the expectations and requirements of faculty. If the university is meeting it fiduciary responsibilities to all of its stakeholders, then it is paramount that students become well acquainted with the concept of academic rigor, the uncompromising dedication to academic work and to the realities of how much pure tensile strength and devotion will be required of the student to take them to their goal of graduation and finally, to the many life sacrifices that an education demands. Early acclimation to these realities may be one of the best methods to avoid any misunderstandings, ill-conceived or unreasonable and biased student perceptions, and finally to our focus in this research study; which is erroneous student expectations of academic entitlement. Conversely, the institution must identify, understand, and recognize the wants, needs, desires, and requirements end-line consumers. The primary goal of higher education is to introduce knowledge, provide an environment for intellectual growth, and to ensure that students are given every opportunity to hone their work related skills in preparation for a successful professional career. It may be posited that if this aspect of the student and higher-learning equation is not recognized, (by either the student or the institution of higher learning) than the reputation of the learning institution may be diminished in the eyes of society and of business at large and the students who matriculate from that learning institution will have a diminished value in the eyes of the end consumer which is the external stakeholder (business and society).

Paradox of Effort Perceptions, Participation, and Grading

When examining the results presented, a paradox among the responses arose. One aspect from the survey results focused upon student individual perceptions, as they related to effort and perceptions of grading, as well as fairness in grading ("I get the grades I deserve"). Survey results clearly indicated a high level of support for the concept of rewarding effort (via awarding of high grades) regardless of the level of mastery of the topic or skills being taught.

Student expectations that "effort" be a consideration in the grading process are not a new phenomenon. Unfortunately such an expectation is riddled with concerns of equity, fairness, and objectivity because it is impossible for faculty to accurately gauge effort, not only outside of the classroom environment, but also within it. Learning is a highly individualized process, and the effort required, for any task, will vary dramatically from person to person. Teachers can recall students who exerted the minimum levels of effort required within a course yet had a mastery of the subject matter at hand, as demonstrated by their achievement of the requisite learning and course outcomes. Such mastery may come not from the minimum effort but from prior knowledge, raw intellect, or other internal factors. This assumption derives from the response ratios identified in Table 1; particularly for questions 11 and 18. Question 11 asked if discussion grades should be based more on participation than on the quality of the answers provided. Question 18 asked where "in the interest of fairness, additional assignments to increase grades should not be al-

lowed". For question 11 only 28.9% of respondents strongly agreed/agreed; however, while this percentage may appear small it is still significant enough (nearly 1 in 3) to indicate the value of "effort" (number of times participating) to the respondent and leading to a heightened sense of entitlement. The t-test indicated a statistically reliable difference between the mean of ReadGrd that the EfftGrp1 has (M = 2.96, s = 1.007) and that the EfftGrp2 has (M = 3.30, s = .849), $t(1149) = 5.977$, $p = .000$, $\alpha = .05$. For question 18 only 40.3% agreed, implying that 59.7% believed additional assignments should be allowed to increase grades. The t-test (Table 4) indicated statistically reliable difference between the mean of DBFocus that the EfftGrp1 has (M = 2.53, s = 1.309) and that the EfftGrp2 has (M = 3.00, s = 1.351), $t(1161) = 5.722$, $p = .000$, $\alpha = .05$. Such an entitlement belief diminishes the value of the actual course set assignments since students may anticipate they will be automatically granted the opportunity to improve the final course grade through extra work.

The survey results directly suggest faculty may, indeed, already be taking some measure of "effort" into consideration while grading students' work. Responses on question 7 indicate that 90.1% of the students were in agreement that they received the grade deserved. Of course this is tempered by the level of subjectivity in grading, which will vary based upon the topic and mode of assessment utilized. But it must be repeated that there is no consistent and accurate way to measure and administer effort as a grade attribute. If faculty factor "effort" into the awarding of grades, as was suggested by the students' responses, it is being done unconsciously or subconsciously. Additional exploration of this topic from the faculty perspective will be necessary to obtain further understanding.

CONCLUSION

From data reviewed, the authors can clearly state that a large percentage of college students arrive in the classroom with a sense of entitlement related to academics and accommodation. Although students can and should expect courtesy, quality, and respect, they should also expect to exhibit those same traits in their dealing with other students, faculty, and administration. Students should not expect a quid pro quo or equal relationship with the academic institution or with faculty. In this evaluation of self-entitlement perceptions, results indicated that surveyed students expected and anticipated that they were positioned within the classroom in a dominant customer-business role rather than in a traditional teacher-student role.

A disconnect between the student and the academic institution occurs when students, who expect to simply be given a good grade or who want classroom requirements, deadlines, and so on, waived or changed at their whim, or based upon personal rather than emergency or professional reasons, find there is significant difference between their perception and academic reality. Such paradoxes and contradictions (enforcement of classroom etiquette, deadlines, and assignment requirements compared to student entitlement expectations) subsequently create negative attitudes about the school and the faculty.

The goal of this paper was to identify and examine student academic entitlement perceptions and to verify their existence within post-secondary education. Through this work, it has been ascertained that in post-secondary institutions should not assume that students enter the post-secondary educational environment knowing what is expected. Converse to past beliefs that students are prepared this student brings to light that students understand what is expected of them; but that rather, students should be exposed to the concepts/expectations of good time management, the amount of time, the necessary sacrifices, the amount of effort and the production of high-quality assessment products so they may earn, not given, a high quality educational experience.

RECOMMENDATIONS

The researchers highly recommend that incoming and continuing students be presented and advised of university expectations honestly, completely, and directly, to create or foster a fully understood student-university relationship. Such expectations should be clearly laid out by the institution of higher learning and all students should be required to read and acknowledge their understanding of the institution of higher learning expectations. This may elicit additional cost as such a requirement may seem absurd at the college level, but doing so should have a direct impact on academic-entitlement perceptions and strengthen the students' collegiate experience.

The efficacy of the data is undeniable. In this article, the researchers' goal was to address academic entitlement beliefs from a global perspective. Further research into the student academic entitlement paradox must continue in order to further understand and resolve the negative impressions that such a paradox may create.

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Attitudes of Students and Practitioners Regarding Ethical Acceptability of Accounting Transactions

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ABSTRACT

This study reports the findings of a study assessing the acceptability differences in decisions made by Certified Public Accounting practitioners (CPA) and students studying to become CPAs. The study responds to researchers' call for additional research on topics related to accounting decision ethics. Modified managerial and accounting recognition scenarios were used to collect the acceptability of ethical judgments. The analysis employs factor analysis to affirm whether the scenarios are managerial or accounting recognition decisions. The analyses further divides the managerial decisions into either revenue or expense related. The accounting recognition decisions are further divided into those involving an accounting manipulation or inventory related. Students' acceptability of the accounting transactions was far harsher than the practitioners. However, both students and practitioners considered the accounting scenarios to be unethical. Both students and practitioners judged the managerial revenue scenarios to be ethical but the managerial expense scenarios to be moderately unethical. In addition to the ethical acceptability of accounting transaction, student and practitioner demographic data including age, work experience and academic credentials are investigated to explain the differences.

INTRODUCTION

During the past decade, corporate scandals, fraud and financial report restatements have been persistent in the news headlines. Critics of the accounting profession claim that these events are the product of poor professional judgment, especially poor ethics. Lam and Samson (2005) report cleverness and creativity have replaced the traditional honesty and integrity which characterized accountants of the past.

This study reports the findings of an investigation aimed at assessing any differences in ethical decisions made by accounting practitioners (CPAs) and students studying to become CPAs in East Texas. This study responds to researchers (Keith et al. 2009; Valentine and Bateman 2011; Klimek and Wenell 2011) who call for additional research on topics related to the ethics of accounting decisions. The investigation used modified managerial and accounting recognition scenarios used in previous studies (Merchant and Rockness 1994; Grasso et al. 2009). In addition to determining decision making tendencies, de-

mographic variables such as age, work experience and academic credentials were investigated in an attempt to explain the differences.

ETHICS TRAINING

Accounting educators have responded to the claim for more ethical awareness by modifying curriculum to cover ethical studies and training (Bernardi and Bean 2006; Haas 2005). Professional Accounting Boards have also responded to the call to modify accounting curriculum. The Texas State Board of Public Accountancy's (TSBPA) Behavioral Enforcement Committee received lots of complaints against CPAs who did not understand the Rules of Professional Conduct. Initially the focus was on providing a greater understanding of those rules. In January 1995, Texas initiated the ethics continuing professional education (CPE) requirement (TSBPA 1994) which requires each licensee to complete a two-hour mandatory ethics CPE course every three years. The ethics requirement changed again in January 2005, to a four hour biennial mandatory ethics CPE update (TSBPA 2004).

PLACE IN THE ACADEMY

The TSBPA requested Texas colleges and universities to include a state board approved ethics course in their curriculum effective July 2005. The requested ethics course attempts to raise the level of ethical reasoning utilized in public accounting and became a requirement for those applying to sit for the CPA exam in Texas. According to Barbara Stooksberry (personal correspondence to authors, March 4, 2011), TSBPA Publications Editor, "forty-five Texas schools had ethics courses in place for the fall semester of 2004 so that their students would be able to meet the 2005 ethics requirement." Stephen F. Austin State University (SFASU) began offering a required discrete accounting ethics course that met the TSBPA criteria in the fall semester of 2004. The University of Texas at Tyler (UTT) also began offering a general business ethics course in the fall 2004 semester. The UTT class met the TSBPA criteria but was not required: instead it was highly recommended for accounting majors.

Effective 2008, Maryland was the second state to require those applying to take the CPA exam to complete a three-hour course in business or accounting ethics (Mintz and Morris 2008). Beginning 2014, the educational requirements for CPA licensure by the California State Board of Public Accountancy includes a three-hour course in accounting ethics or accountants' professional responsibilities (AccountingCoach 2011). Additionally, Ohio requires an ethics course for candidates who do not have a graduate degree in accounting (Aghimien and Fred 2010).

Several studies focus on whether students' moral and ethical reasoning can be positively influenced by a discrete course in accounting ethics (Dellaportas 2006; Welton et al. 1994; Armstrong 1993; Thompson et al. 1992; Lampe 1996). According to researcher Rest (1986), additional education is an important factor to increase the development of moral reasoning. That ethics education matters is well supported in the literature (Dellaportas 2006; Welton et al. 1994; Armstrong 1993; Thompson, et. al. 1992; Lampe 1996). In addition, Lau (2010) reports that ethics education improved students' ethic awareness and moral reasoning.

The Association for the Advancement of Collegiate Schools of Business's (AACSB 2004) Ethics Task Force embraces the need for ethical training and recommends member schools renew and revitalize their commitment to ethical responsibility at both the individual and organizational levels. As a condition of accreditation, the AACSB requires the inclusion of ethics instruction in any business degree program (Amlie 2010) and demonstrate this commitment throughout their academic programs (Bernardi and Bean 2006).

The members of the American Institute of Certified Public Accountants are also subject to its ethics rules (Mintz and Morris 2008, 102). According to Aghimien and Fred (2010) over half of the states require candidates that successfully pass the CPA exam to complete and pass an ethics exam prior to obtaining a CPA license or certificate.

Prior to 2000, business ethics had a low profile. During the early 2000s given SOX, Enron, WorldCom, Arkadelphia, Tyco, Xerox, Health South, and other exposed events, business ethics was in the limelight and a very high concern. Currently, the concern and emphasis on ethics is relaxing somewhat (Magnet 2011). The recent problems with mortgage companies and financial institutions remind educators that accounting programs still need to emphasize ethical conduct and behavior.

CPA ETHICAL TRAINING IN TEXAS

Researchers Hurtt and Thomas (2011) report survey findings that asked the entire population of Texas CPAs licensed between 2005 and 2010 about their attitude toward the required academic ethics course for the CPA exam and the biennial ethics update required of those who hold CPA licenses. Their study finds a positive perception of the impact of the required three-hour college ethics course. The respondents report that the required course improves their abilities to recognize ethical issues and enhances their decision-making abilities as well as identifying the ethical framework of making decisions (p 34). The study also finds a much less favorable impression of the biennial ethics update as compared to the required course in their academic program.

Contrary to the Hurtt and Thomas (2011) findings that licensed Texas CPAs were not impressed with their required biennial ethics training, The Texas State Board Report (TSBPA 2010, 11) reports that the disciplinary actions taken against CPA licensees in Texas declined 43 percent in 2006 when compared to 2005. The declining rate continued through 2009. A comparable decline during the 2005 – 2009 period was found for the CPA license holders in East Texas. During the six years, 2006 through 2011, only 270 complaints were recorded by the TSBPA. Of these complaints, 3.3 percent were for discreditable acts that include unethical behavior. In the last three years, no discreditable act complaint was filed against East Texas TSCPA members (Stooksberry personal correspondence to authors, August 18, 2011). This data supports the conclusion that the required biennial ethical training produces results.

THIS STUDY

This study focuses on the ethical acceptance of accounting transactions of accounting professionals and those who aspire to become accounting professionals in East Texas. With the TSBPA adoption of required continuing ethic CPE training for Texas accounting professionals and required academic ethics course for students who aspire to sit for the CPA exam in Texas, this study investigates if any difference exists in the ethical acceptability of accounting transactions between the East Texas TSCPA members and students.

This investigation is restricted to those accounting professionals (N=803) practicing in the East Texas region serviced by the East Texas Chapter of the Texas Society of Certified Public Accountants (ETCTSCPA). The East Texas Chapter is the sixth largest TSCPA chapter in Texas and its members represent 20 counties in North Eastern Texas. Exhibit 1 compares the East Texas Chapter members' information to that of the members in the Texas state-wide TSCPA organization that were used by Hurtt and Thomas in their 2011 survey. As displayed in Exhibit 1 the East Texas TSCPA members have held their CPA certificate for a longer period than their state-wide colleagues, fewer work in industry, they tend to be female, and are somewhat older than their state-wide associates.

The students in the investigation (N= 612) are studying to become accounting professionals at the two four-year higher education institutions that offer the TSBPA criteria that meets all requirements to take the CPA exam - SFASU and UTT. The students are classified as juniors, se-

EXHIBIT 1
Comparison of East Texas to State-wide Membership

	East Texas TSCPA Chapter	State-wide TSCPA Membership
Years holding CPA		
0 – 5 years	12.6%	17.1%
6 - 10 years	10.4%	8.8%
over 10 years	77.0%	74.1%
Employment		
Public practice	34.9%	33.7%
Industry	28.3%	34.3%
Sole practitioner	19.2%	14.3%
Ed/ Government	6.7%	4.4%
Other	10.9%	13.3%
Gender		
Female	56.8%	59.6%
Male	43.2%	40.4%
Age		
35 and under	16.7%	19.3%
36 - 49 years	23.9%	26.0%
50 and older	59.4%	54.7%

niors and master program students that have elected to study the curriculum necessary to sit for the CPA exam. The use of human subjects in the investigation complies with applicable university policies at both SFASU and UTT.

Data was collected through the use of a modified questionnaire developed by Merchant (1989) and used by other researchers (Burns and Merchant 1990; Merchant and Rockness 1994; Grasso et al. 2009). The questionnaire consists of 13 short scenarios that describe possible questionable operations or accounting management decisions at a hypothetical manufacturing firm. The financial data in the scenarios were amended using the Consumer Price Index to change amounts from their original 1989 values to comparable 2010 values (US Department of Labor 2011).

The study participants are asked to evaluate each scenario by indicating their judgment as to the ethical nature of the transaction using the following scale:

- 1 = ethical decision
- 2 = questionable decision
- 3 = moderately unethical decision
- 4 = seriously unethical decision
- 5 = totally unethical decision

The scenarios are designed to respond to operating decisions or to an accounting decision that would normally be part of an audit review (Exhibit 2). Scenarios 1, 2, 3, 5, 6 and 7 address management operating decisions whereas the remaining scenarios address accounting decisions.

Data Collection

Survey Monkey was used to email the questionnaire to the study participants. Only 700 valid email addresses were available for the practitioners. Of the questionnaires sent to the accounting professionals, 225 were returned for a 32.14 percent response rate. Of the 612 emailed to students, 133 were returned for a 21.7 percent response rate. Each of the response rates is consistent with social science survey results (Kaplowitz et al. 2004). The responses from both accounting professionals and students were divided into early and late responders. Analysis found no significant differences between the two groups of responders suggesting that nonresponse bias did not impact the results.

Findings

Exhibit 2 displays each of the scenarios included in the questionnaire together with the decision basis and whether prior studies that used comparable scenarios found them to be ethical or not. In general, prior studies found the managerial decision scenarios to be ethical (Merchant and Rockness 1994; Grasso et al. 2009). The same studies found the accounting decision scenarios to be unethical.

This study disagreed with the Merchant and Rockness (1994) and Grasso et al. (2009) studies regarding the level of unethical managerial decisions but agreed with their findings concerning the accounting recognition decisions.

Types of Accounting Transactions

The thirteen different accounting transactions were analyzed utilizing a Principle Components Analysis with rotation using SPSS Version 19. Prior to performing the analysis, the suitability of the data for factor analysis was assessed. Inspection of the correlation matrix revealed the presence of many coefficients of .3 and above. The Kaiser-Meyer-Orkin value was .64 (Kaiser 1974; Tabachnick and Fidell 2007). The Bartlett's Test of Sphericity (Bartlett 1954) obtained a Chi-Square of 1364.4 with df 78 and significant at .000 which supports the factorability of the correlation matrix.

The analysis revealed the presence of four components with Eigenvalues greater than one. An inspection of the screenplot revealed a clear break after the fourth component. The rotated factor matrix is presented in Table 1. The four factors explain 61.18 percent of the variance of the 13 transactions. All of the transactions load on one of the four factors. A majority of the large coefficients are positive, indicating the factors have the same directionality as the original value, i.e., large values indicate an unethical rating and small values indicate an ethical rating.

The first two factors appear to represent dimensions discussed by Burns and Merchant (1990) as accounting manipulations. Three accounting scenarios loaded on the first factor that involves a manipulation of inventory recognition. Four accounting scenarios loaded on the second factor that represents the manipulation of accounting or accounting recognition. Scenario 8, Prepay

EXHIBIT 2				
#	Ethics Study	Decision Basis	Ethical or Unethical	
			Prior studies	This study
1	The organization's headquarters building was scheduled to be painted in 2011. Since profit performance was way ahead of budget in 2010, the COO decided to have the work done in 2010. Painting contract amount: $280,000	Managerial decision	ethical	ethical
	The following information applies to situations 2 and 3. The COO ordered the organization's employees to defer all discretionary expenditures (e.g., employee travel, advertising, hiring, maintenance) into the next accounting period so that the organization could make its budgeted profit target. Expected amount of deferrals: $300,000			
2	The expenditures were postponed from February and March until April to make the first quarter target.	Managerial decision	ethical	marginally unethical
3	The expenditures were postponed from November and December until January in order to make the annual target	Managerial decision	marginally ethical	marginally unethical
4	On December 15, a clerk ordered $6,000 of office supplies, and the supplies were delivered on December 29. This order was a mistake because the COO had ordered that no discretionary expenses were to be incurred for the remainder of the fiscal year and the supplies were not urgently needed. The organization's accounting policy manual states that office supplies are to be recorded as an expense when delivered. The COO learned what had happened, and to correct the mistake, asked the accounting department not to record the invoice until February.	Accounting recognition	unethical	unethical
	The following information applies to situations 5, 6 and 7. In September the COO realizes that the organization would need strong performance in the fourth quarter to reach its budget targets.			
5	The COO decided to implement a sales program offering liberal payment terms to recognize some sales that would normally occur next year into the current year. Customers accepting delivery in the fourth quarter would not be obligated to pay the invoice for 120 days.	Managerial decision	ethical	marginally ethical
6	The COO ordered manufacturing division to work overtime in December so that everything possible could be shipped by the end of the year.	Managerial decision	ethical	ethical
7	The COO sold some excess equipment and realized a profit of $75,000.	Managerial decision	ethical	ethical
	The following information applies to situations 8 and 9. At the beginning of December 2010, the COO realized the organization would exceed its budgeted profit targets for the year.			
8	The COO ordered the organization controller to prepay some expenses (e.g., hotel rooms, exhibit hall expenses) for a major trade show to be held in March 2011 and to record them as 2010 expenses. Amount: $ 115,000	Accounting recognition	unethical	unethical
9	The COO ordered the controller to write down the finished goods inventory due to obsolescence (i.e., reduce the organization's asset value and record a corresponding loss in the income statement). By taking a pessimistic view of future market prospects, the controller was able to identify $1,300,000 worth of finished goods that conservative accounting would say should be written off even though the COO was fairly confident the finished goods would still be sold at a later date at close to full price.	Accounting recognition	unethical	unethical

EXHIBIT 2

#	Ethics Study	Decision Basis	Ethical or Unethical	
			Prior studies	This study
	The following information applies to situations 10 and 11.			
	In 2011, the organization sold 70% of the written-off finished goods, and a customer indicated some interest in buying the rest of the written-off inventory the following year. The COO ordered the controller to write the inventory back up to its original full cost. This involves a $400,000 increase in the finished goods inventory asset value (which had been previously written down due to obsolescence) and a corresponding increase in net income. The COO motivation for recapturing the profits was:			
10	To be able to continue working on some important product development projects that might have been delayed due to budget constraints.	Accounting recognition	unethical	unethical
11	To make budgeted profit targets.	Accounting recognition	unethical	unethical
	This information applies to situations 12 and 13.			
	In November 2010, the organization was straining to meet budget. The COO called the consulting firm that was doing some work for the organization and asked that the firm not send an invoice until next year. The firm agreed. Estimated work done but not invoiced:			
12	$60,000	Accounting recognition	unethical	unethical
13	$940,000	Accounting recognition	seriously unethical	seriously unethical

Table 1
Rotated Factor Analysis

Trans-action Type	Description	Scenario	Acct Inventory	Acct Manipulation	Mgt Revenue	Mgt Expense
Mgt	Paint ahead of schedule	Q1	.081	-.120	**.529**	-.236
Mgt	Defer expend - month	Q2	.032	.054	.334	**-.956**
Mgt	Defer expend - year	Q3	.063	.051	.323	**-.946**
Acct	Record supplies next year	Q4	.035	**.558**	-.115	-.142
Mgt	Pull sales - liberal terms	Q5	.084	.206	**.594**	-.374
Mgt	Overtime to max shipments	Q6	.095	-.015	**.827**	-.167
Mgt	Sell excess assets	Q7	-.002	-.055	**.639**	-.146
Acct	Prepay next year expense	Q8	.451	**.498**	.013	.086
Acct	Write down inventory	Q9	**.550**	.154	.322	.112
Acct	Write up inventory - prod dev	Q10	**.896**	.226	.005	.004
Acct	Write up inventory - profit	Q11	**.888**	.256	.054	-.141
Acct	Delay consult cost - small	Q12	.270	**.860**	.036	.042
Acct	Delay consult cost - large	Q13	.279	**.853**	.053	.000
Percent variance explained			22.610	10.430	18.840	9.31
Cumulative explained 61.18%						

next year expense, was a bit unusual as it loaded only moderately higher on Accounting Manipulation. It was classified with that factor because none of the prepaid expenses were inventory.

The third and fourth factors are operating transactions as they clearly manipulate activities as directed by the chief operating/management officer. For the operating manipulation factors, four scenarios loaded highly on factor three which represents operating decisions that changed expenses. Two scenarios loaded on the fourth component that changed revenues.

Prior to analyzing the differences among groups of respondents, the means of the 13 scenarios grouped by the factors on which they loaded was examined. Table 2 displays the mean responses to these original scenarios and the mean of the scenarios and the mean for the each factor. Earlier studies' findings (Burns and Merchant 1990; Grasso et al. 2009) that manipulating accounting methods is less acceptable ethically than manipulating earnings by means of operating decisions is strongly supported. Within the managerial operating scenarios, our respondents felt the manipulations that changed the timing of expense recognition were much more questionable ethically than manipulations which changed revenue timing. In the accounting manipulation area, there was little difference between the respondents' rating of the unethical acceptability of manipulation by means of adjusting inventory valuations and other forms of accounting manipulations.

Practitioner Versus Student Ethical Acceptability of Transactions

Table 3 displays the comparison for each scenario of the reported professional ethical acceptability compared to the student ethical acceptability.

No significant difference was found among the levels of ethical acceptability value between the student and practitioner groups for the accounting recognition scenarios. These include scenario Q 4 recording supply cost next year, scenario Q 9 writing down inventory value and scenario Q 11 writing up inventory value to reach profit target. The two groups' ethical acceptability values significantly differed on all other scenarios that include both managerial and accounting recognition decisions with students displaying a much more idealist decision of unethical acceptability. This supports Valentine and Bateman's (2011) study that used students to investigate ethical

TABLE 2
Mean scores of Decisions Grouped by Factor

Accounting	Scenario	Mean	sd	Factor Mean
Inventory Transactions				3.78
Write down inventory	Q9	3.66	1.30	
Write up inventory - prod development	Q10	3.66	1.32	
Write up inventory - profit	Q11	4.01	1.87	
Manipulation Transactions				4.11
Record supplies next year	Q4	4.34	0.96	
Prepay next year expense	Q8	3.78	1.35	
Delay consult cost - small	Q12	3.90	1.22	
Delay consult cost - large	Q13	4.42	0.96	
Managerial				
Revenue				1.64
Paint ahead of schedule	Q1	1.42	0.83	
Pull sales - liberal terms	Q5	2.47	1.36	
Overtime to max shipments	Q6	1.42	0.82	
Sell excess assets	Q7	1.25	0.72	
Expenses				3.17
Defer expend - month	Q2	3.01	1.52	
Defer expend - year	Q3	3.33	1.58	

TABLE 3
RESPONSE ANALAYSIS
PROFESSIONALS VERSUS STUDENTS

	Question	Ethical	Questionable	Moderately Unethical	Seriously Unethical	Totally Unethical	Total N	Mean	Standard Deviation	t-test	Sig.
	Paint ahead of schedule									12.503	0.014
1	Professionals	173	34	8	2	4	221	1.33	0.752		
	Students	84	26	16	2	3	131	1.58	0.928		
	Defer disbursements - month									33.311	0.000
2	Professionals	68	54	26	32	42	222	2.67	1.506		
	Students	13	19	23	30	46	131	3.59	1.358		
	Defer disbursements - year									33.528	0.000
3	Professionals	56	44	25	32	57	214	2.95	1.574		
	Students	12	13	14	20	70	129	3.95	1.380		
	Record supplies next year									0.991	0.911
4	Professionals	3	14	24	48	136	225	4.33	0.987		
	Students	1	6	15	31	75	128	4.35	0.919		
	Pull sales - liberal terms									15.878	0.003
5	Professionals	80	59	27	27	19	212	2.27	1.324		
	Students	26	26	27	24	16	119	2.82	1.346		
	Overtime to maximize shipments									36.526	0.000
6	Professionals	181	26	4	4	3	218	1.27	0.714		
	Students	70	33	16	6	1	126	1.69	0.925		
	Sell excess equipment									35.694	0.000
7	Professionals	203	8	2	1	1	215	1.09	0.429		
	Students	90	14	14	4	3	125	1.53	0.980		
	Prepay next year's expense									12.854	0.012
8	Professionals	15	20	25	46	102	208	3.96	1.285		
	Students	14	22	15	32	37	120	3.47	1.396		
	Write down inventory									4.012	0.404
9	Professionals	19	29	30	52	74	204	3.65	1.343		
	Students	7	14	26	30	38	115	3.68	1.225		
	Write up inventory - R&D									17.585	0.001
10	Professionals	13	26	18	61	78	196	3.84	1.265		
	Students	15	14	23	27	26	105	3.33	1.363		
	Write up inventory - profit target									2.673	0.614
11	Professionals	9	18	19	55	98	199	4.08	1.165		
	Students	6	12	14	32	43	107	3.88	1.219		
	Delay consultant pay - small amt									17.231	0.002
12	Professionals	6	21	28	44	105	204	4.08	1.152		
	Students	9	16	24	33	33	115	3.57	1.257		
	Delay consultant pay - large amt									21.082	0.000
13	Professionals	2	6	9	38	148	203	4.60	0.793		
	Students	6	8	8	36	55	113	4.12	1.148		

Legend:	Code
Ethical	1
Questionable	2
Moderately unethical	3
Seriously unethical	4
Totally unethical	5

reasoning in different business situations. They found (p 162) students scoring high on idealism and relativism measures. Practitioners' experience with the effect of valuation changes on accounting numbers may condition them to the unethical acceptability of this practice. Students, however, have little or no experience with valuation change opportunities and are a bit more idealistic. Given these findings, when students are compared to professions, it is reasonable to find students identifying situations to be more unethically acceptable.

Professionals report all of the decision values for the managerial expense and revenue decisions to be more ethical than the students (Table 3). These include the following scenarios.

More Ethical Managerial Decisions		t-test α=
Revenue		
Q 1	Painting ahead of schedule	0.014
Q 5	Liberal sale credit agreement	0.003
Q 6	Overtime to maximize shipments	0.000
Q 7	Selling excess equipment	0.000
Expense		
Q 2	Postponing disbursements by up to 2 months	0.000
Q 3	Postponing disbursements until the new year	0.000

This finding is anticipated based on prior studies (Nash 1990; Axline 1990; Van Der Wal 2011) that explain as managers gain experience in ethical decision making, nuances begin to influence and mediate their judgment. Said another way, professionals can see the shades of gray and decisions are not just black or white thus they lose the ethical idealism common to students and become more realistic.

The managerial expense manipulation scenarios could be judged to be either questionable management practices or questionable ethics. Because of their experience, practitioners may have read these scenarios as questions of management practice rather than questions of ethics thus judging them to be less unethical than did the students.

Other than the accounting recognition decision (Q4, Q9, and Q11) that found no significant difference between the ethical acceptability of the students and professionals, all other accounting decisions were reported as being more ethical by the students and less ethical by the professionals. The accounting recognition decisions that students found to be more ethical include the following.

More Ethical Accounting Decisions		t-test α =
Manipulations		
Q 8	Prepaying net year's expense	0.012
Q 12	Delaying small amount consultant fee	0.002
Q 13	Delaying large amount consultant fee	0.000
Inventory		
Q 10	Writing up inventory	0.001

Given the differences in levels of ethical acceptability reported by students and professionals, additional analysis was employed to identify the demographic variables that explain the differences (Table 4). Years of work experience reported by the professionals most often explain their more ethical managerial decisions.

Student status and type of employment more often explained the students' greater unethical value regarding accounting recognition decisions. This reinforces the ability of the practitioners to be aware of the serious valuation impact of the scenarios on the accounting financial reports.

Limitations

This study explores the ethical decisions made by accounting professionals and students who aspire to become accounting professional in the East Texas region.

The findings are tentative due to a number of limitations. First the scenario questionnaire format incorporated only 13 short scenarios. Some of the response differences may have been the result of assumption differences made by the respondents. For example, was the scenarios description within the manager's responsibility? Perhaps smaller variances in responses would

Table 4
Analysis of Variance
Significant Demographic Variables for Each Scenario

Scenario	F	Sig.	Significant Demographic Variable(s) with α value
Q 1	1.587	0.129	
Q 2	3.905	0.000	Work experience .009
Q 3	3.834	0.000	Work experience .005 and academic degree .081
Q 4	0.773	0.627	
Q 5	4.495	0.000	Work experience .001 and academic degree .094
Q 6	5.855	0.000	Work experience .000 and status .060
Q 7	5.360	0.000	Work experience .009 and ethic auditing training .018
Q 8	0.827	0.579	
Q 9	1.093	0.369	
Q 10	2.854	0.005	Employment .039
Q 11	1.830	0.072	
Q 12	1.973	0.050	Status .027
Q 13	2.161	0.031	Status .003

Demographic Variables:

Status = professional or student
Gender = male or female
Employment = type of professional or student
Work experience = number of years
Academic degree by level
Academic major by discipline
Completed any ethic academic training = yes or no

have occurred had the scenarios provided more information and content.

Second, the population may not be representative for generalization. The professionals represent only regional East Texas CPA firms. No national (big-4) firm representatives were among the respondents. However, industry, manufacturing and educational CPAs were among the respondents. In addition, no students from private higher education institutions with an academic accounting program were a part of the study. The findings may not be representative of a state or national population. However, they would be generalizable to a comparable regional location.

Third, although the responses were anonymous, some response bias may be present in the responses.

CONCLUSION AND SUGGESTED FUTURE RESEARCH

This study confirms prior studies (Burns and Merchants 1990; Merchant and Rockness 1994; Grasso et al. 2009) that find practitioners and students have a greater ethical acceptability for operating manipulations than for accounting manipulations. This could be based on the accounting profession's concern with ethical codes and generally accepted accounting practices that does not exist for the managerial activities. Accounting standards seek to ensure that financial reports provide an appropriate reflection of the organization's economic status and thus reflect an institutionalization of ethical concern for honesty. The respondents' greater unethical acceptability of the scenarios may reflect this concern.

This study also demonstrates that accounting professionals and accounting students have ethi-

cal sensitivity to questionable managerial and accounting recognition situations but the sensitivity level is uneven. Given the importance of accurate, relevant and reliable information to maintaining the public trust in the accounting profession, this study provides evidence that the educational programs must expend efforts to ensure students are exposed to real-world situations in which managers make business decisions. Students, as well as professional accountants, must appreciate the creativity and effectiveness that managerial decision making requires and not rely solely on explicit policy restrictions or accounting guidance. In fact, ethics and personal integrity are a major issue in everyday business decisions.

This study provides some understanding of the ethical value choices, however nothing is available about the basis of the respondents' judgments. Issues such as why the ethical value was selected provide motivation for future research. More can be done as future studies could employ more extensive descriptions of manipulative accounting practices in any number of situations such as financial institutions, markets or service industries. Future studies could also query a much larger, more expansive, population which would allow robust analysis including differences among professionals.

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IS Curriculum Recommendations for Web Courses in higher education

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ABSTRACT

A wide variety of software tools is currently available to businesses when building e-commerce solutions. Businesses are in need of employees with the appropriate skills to support and implement their e-commerce solutions. Students transitioning from school into the workforce need a well-designed curriculum that can prepare them with the skills needed in the competitive today's job market. The challenge for designing an adequate curriculum for IS programs is the wide array of available tools. This research has taken a survey of the web technologies used by the Fortune 500 companies and compared it to a sample of job postings from businesses. This paper addresses the question of what web tools should be incorporated into the IS curriculum that will make its graduates competitive in the job market.

INTRODUCTION

Technology and business change very rapidly (Goldweber et al. 1997, Lee et al. 1995), creating a gap between current IS curriculum and business needs. Trauth et al. (1993) attribute this gap to a lack of relevance of IS curricula and a shared vision of the requisite knowledge and skill set for IS professionals. It is very difficult to create new curriculum at the speed with which business and technology evolve. According to Mandt (1982) the rate that technology changes is such that no school could possibly keep up. Add to this the slow rate of change in academia coupled with resistance to change and keeping the curriculum up-to-date becomes more daunting (Johnson and Jones, 2006). However, if education is to remain a vital cog in the development of students into a viable workforce, schools must seek to create relevant curricula (Little et al. 1977). If not, students may opt for an alternative to a college education. Further, professional support could be withdrawn from schools as a result of failure to produce an acceptable workforce (Lee et al. 1995). The inability to provide an adequate education could also affect the reputation of a school which could result in decreased enrollment, decreased revenue from tuition, and decreased funding (Bhattacharya et al. 2006). Providing relevant curricula and the falling enrollment rates have been of major concern to both academics and industry (Lee et al. 1995). Additionally, IS education has come under criticism as being unable to produce viable IS professionals (Archer 1983, Cardinali 1988).

There are many different types of technologies in IS Business such as computer networking, databases systems, and web-based systems. Among those technologies, we chose web-based tools for several reasons. First, despite the boom-and-bust cycle recently experienced, e-commerce has experienced steady growth (Ho et al. 2005). Second, this growth is expected to continue as more and more people accept the web as a means for commerce (Bolin 1998, Yang and Miao 2005). Third, growth of the web has created a need for professionals to increase their knowledge of web-based tools to keep pace with e-commerce

growth (Cache et al. 2004). So, it is worthwhile to conduct a survey to discover the most widely used web tools in IS business to shape our web course curricula to help prepare students for the competitive job market.

We are not advocating that IS programs should take students and create technicians. Creating technicians might be more suited to the Computer Science program. However, MIS graduates should have a solid knowledge of web-based tools to be able to complete a systems analysis or to consult effectively.

The paper is organized into the following sections. Background will provide more information on the gap between academia and IS business. Research methodology will detail the steps taken to gather our data. Data analysis discusses the results of the analyses run against the data. Discussion elaborates on the meaning we perceive in the data. Finally, conclusion sums up our research and provides possible directions to pursue for future research.

BACKGROUND

According to Andriole (2006) this gap between academia and IS business is widening, and the gap between theory and practice will greatly affect the ability of graduates to find employment. Employers want potential employees who can pick up the tasks assigned to them with a minimum of instruction and training. Nunamaker et al. (1982) assert that the purpose of an undergraduate IS education is to equip the student to serve in an entry level position and provide the student with a base for career growth. An employer will hire an individual who can do the job, not the individual with the most promise of being able to do the job after training (Mandt, 1982) to decrease the amount of time and money needed to train the employee and maximize business value.

For IS curriculum to be effective it must be based on the needs of the industry and should facilitate the greater contribution of the IS student to the organization (Nunamaker et al. 1982). Many scholars refute the idea that an IS curriculum is valid if based on the requirements of some accreditation board or based on the requirements of academicians (Andriole 2006, Trauth et al. 1993, Mandt 1982, Goldweber et al. 1997, Daniels and Feather-Gannon 2003, and Lee et al. 1995). Since business needs are constantly changing the curriculum must be periodically updated or the students will not learn the skills that employers require (Johnson and Jones, 2006). Nunamaker et al. (1982) put forward that the curriculum changes should reflect the changes in IS, advances in technology, and various other business needs. Indeed, education may become an obstacle rather than a tool to help students gain employment. Should this happen, students may go to another institution of higher education that offers the courses that meet industry requirements or they will find other arrangements such as a technical school or on-the-job training (Bhattacharya et al., 2006). Trauth et al (1993) pointed out three problems with updating IS curricula. First, advice coming from industry sources is often contradictory. Second, accreditation standards often dictate how flexible the curriculum can be. Third, there is a delay before curriculum changes can be implemented. Little et al. (1977) found that the changes to curricula came too slowly and the extent of the change was too limited, meaning that the curricula still did not meet the desired expectations.

Methods for updating IS curricula involve surveying academic institutions, business leaders, and IS graduates. Surveying other academic institutions that have had success in placing graduates can provide valuable insight into what skills and knowledge are currently being sought by businesses. This will also provide information into what students are looking for in an IS education. Business leaders, especially those involved in IS, can provide the most important information for redesigning curricula. Business leaders are the ones hiring IS graduates and they are much closer to the business process than the typical academician (Gruba et al. 2004). They know the needs of their own companies and possibly the needs of their general area (Goslar and Deans 1994) as they are required to keep themselves up-to-date regarding IS developments (Lee et al. 1995). Most of the sources reviewed for this paper advocate using industry as the main reference when designing a new IS curriculum or updating the current curriculum. Graduates who are now working can also prove an invaluable source of information. They can provide information on what they wish they had been taught while in school and what they had to learn once they were hired. They can also supply information on which classes were of most value and which

classes should be either eliminated or redesigned to provide the best education for future students.

Professors may not be comfortable with teaching new technologies. Yet this is exactly what industry requires (Patterson 2006). Many professors learned programming languages such as COBOL or FORTRAN. However, current research has determined that business leaders are putting less and less emphasis on such languages and are putting more emphasis on fourth generation languages (Trauth et al. 1993). Additionally, many professors did not learn web technologies as a part of their formal education, the web being a fairly recent development. However, many businesses depend on the web and web technologies to compete in the world market.

The web is becoming a much more integrated part of businesses, and web skills and knowledge are in much greater demand. However, the number of available web technologies can be daunting when trying to choose which ones will make up the technological part of the IS curriculum. In addition, not all of these technologies can be used together because of incompatibilities and other limitations. So which methods should be used to determine the best fit for the IS curriculum? Which of the available web technologies would be of most value to the students' future employment? Should a variety of technologies be taught or should the curriculum have a certain focus such as opensource or maybe a specific proprietary web scripting language?

RESEARCH METHODOLOGY

We surveyed the top 500 companies listed in the Fortune 500 index (http://money.cnn.com), and, we compiled a list of the web technologies used. Some of these companies own and operate multiple web sites. We recorded whether a certain web technology was present on any of the sites owned by a particular company without distinction between the multiple web sites. Preliminary results show that some companies make use of one web scripting language exclusively while others make use of any and all available technologies.

We pulled up the chosen company's home page using the Mozilla Firefox 2.0.0.14 browser. We pulled up source code for the company web pages by using the View/Page Source option, and then searched for known web tools by looking at file extensions and code comments using the search function built into Firefox. Afterward, we visually searched through the code for any web tools that the search function may have missed. If sites had their own search functionality, it was also utilized to search the site for the various web technologies. In addition, some files, such as the annual report in PDF format, were routinely found in the Investor section of each web site. We would also determine the technologies used by running the mouse pointer over the various links on the web site and examining the URL that appeared in the status bar at the bottom of the screen. Subsidiary web sites belonging to a parent company were also examined and the data recorded for the parent company. Links to subsidiary web sites were usually found on the main corporate web site to indicate which companies the parent company owned.

Upon completion of the survey of Fortune 500 index, another similar survey was conducted targeting job announcements for jobs relating to the internet in single western state. These jobs were identified by checking statewide newspapers as well as several statewide and nationwide websites. When searching statewide websites no effort was made to limit the search to a particular city or region of the state. In searching nationwide job search websites all searches were limited to jobs that were local to the state. Jobs outside of the state were excluded from the search.

A total of five websites were searched. Upon searching the fifth site it became apparent that we were not going to find any more unique listings. Terms used to search for internet related jobs were web and internet. The listings that were returned were then examined and the technologies listed in the job announcement were recorded in a similar manner to the first survey. The technologies listed were recorded as present or absent from the job announcement. Certain technologies were grouped together. For instance, there are several technologies in the family of XML such as XSL and XSLT. These were grouped together under the XML category.

Limitations

We tried to make the procedure for reviewing the web sites as methodical as possible. Each site was reviewed as detailed above. Some data could have been overlooked due to human error. In instances where some data was thought to be missing, a review of the site was undertaken to determine

if the data was indeed missing. In the case where we came across a new web tool, we would go back over the previous web sites to make sure that we did not miss it on previous sites. However, after a short time we documented the majority of web tools and came across fewer and fewer new web tools. In addition, out of the 500 companies on the list, 4 companies either did not have websites or the sites were down when the survey was being conducted.

There is also the possibility that in performing the job search that we have recorded some of the jobs more than once. This is a distinct possibility since each of the websites that were used in the study listed information in a slightly different manner than each of the others. In addition, we did leave out some information such as whether the job posting listed a skill or desired familiarity with a certain program that was not a web technology. It could be that we have left out some information that would have been beneficial to the study. We could also have included some jobs in our search that were telecommuting jobs that were not based in the state in the study which could put a bias on our results.

Another limitation in our study is the assumption that the most widely used web tools reflect the skills that employers are looking for. This might be an inappropriate assumption and can be verified by further study. However, it makes sense to assume that employers are looking for potential employees who have some level of knowledge of the web-based tools that the employer is currently using.

DATA ANALYSIS

We can break the technologies used in web sites into two categories. The first category is technologies the web programmer must know to program a web page. The second category is technologies that the web programmer must know to incorporate graphics, audio, video, and other documents into the web site. The first category consists mainly of scripting languages and markup languages. The second category is made up of everything else, such as image formats, audio and video formats, and document formats. We also performed the data analysis in two parts. First we analyzed all 500 companies together, then we took the top 100 companies and ran the same analyses to check for differences in correlation between technologies and frequency of use. Finally we ran the same analyses on the data taken from the 125 job announcements. Each of the categories and the analyses will be explained in further detail in its own section. The impact and recommendations will be reported in the discussion section.

First Category

The items in the first category (see Table 1 and Figure 1) with the highest usage by count are JavaScript (495, 99.8%) associated with Document Object Model (DOM) (495, 99.8%), CSS (492, 99.2%), Flash (280, 56.5%), and zhtml (260, 52.4%). All other items were found to be used by less than half of the companies in the study. However, the companies investigated seemed to favor Microsoft when more advanced web programming was needed. ASP (232, 46.8%) was found most often, ASPX (162, 32.7%) came next followed by JSP (151, 30.4%), ColdFusion (96, 19.4%), PHP (45, 9.1%), shtml (26, 5.2%), jhtml (14, 2.8%), phtml (3, 0.6%), GSP (1, 0.2%), jsf (1, 0.2%), and jspx (1, 0.2%). XML does not seem to have a very heavy influence in the web yet. XHTML (140, 28.2%), the XML version of html, is used most frequently followed by RSS (114, 23.0%) and XML (11, 2.2%). SiteCatalyst, a web analytics package, was used by 28 (5.6%) companies. Finally, member accounts are used by 194 (39.1%) companies and all of 88 (17.7%) companies using shopping carts are part of those 194 companies.

In an analysis of the top 100 companies (see Table 1 and Figure 2), JavaScript and DOM (99, 99.0%), CSS (98, 98.0%), Flash (62, 62.0 %), and zhtml (59, 59.0 %) are the most commonly used. ASP (53, 53.0%) was still the most used of the more robust scripting languages, followed by JSP (46, 46.0%), ASPX (40, 40.0%), ColdFusion (16, 16.0%), PHP (7, 7.0%), JHTML (6, 6.0 %), phtml (2, 2.0%) and shtml (2, 2.0%), and GSP (1, 1.0%). In the second analysis, JHTML moved up while jsf and jspx were not used at all. RSS (43, 43.0%) moved ahead of XHMTL (30, 30.0%) followed by XML (2, 2.0%). SiteCatalyst (5, 5.0%) usage number declined, but the percentage of use stayed the same. Slightly less than half of the companies with member accounts (62, 62.0%) also had shopping carts (28, 28.0%) as in the previous analysis.

Figure 1
Frequency Use for 500 Companies

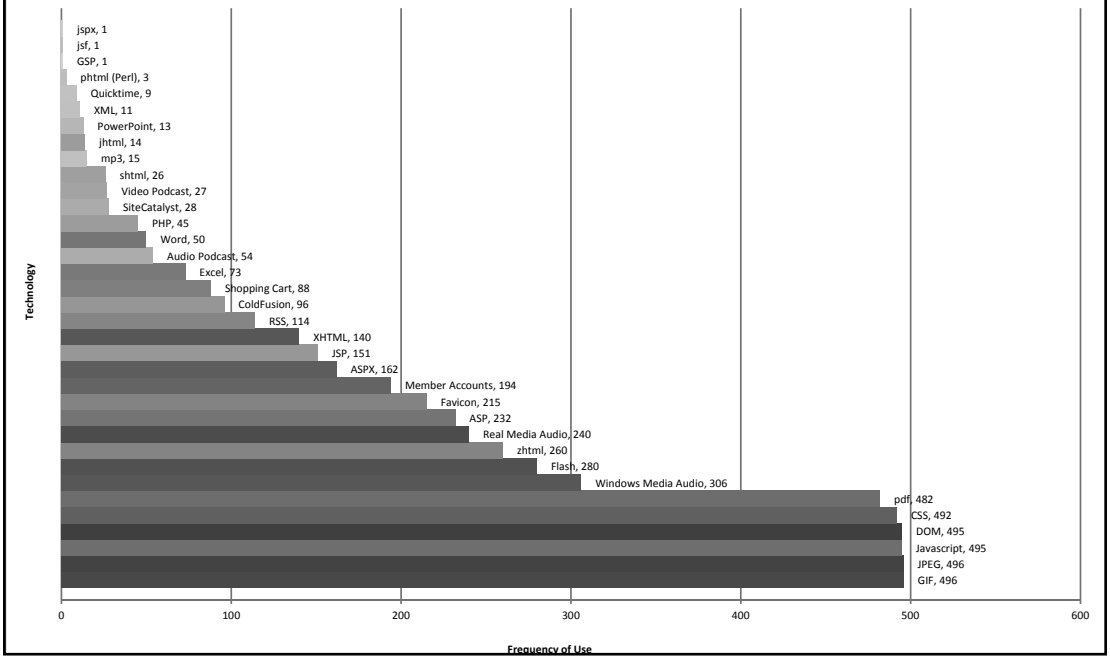


Table 1
First Category
Frequency Counts and Percentages

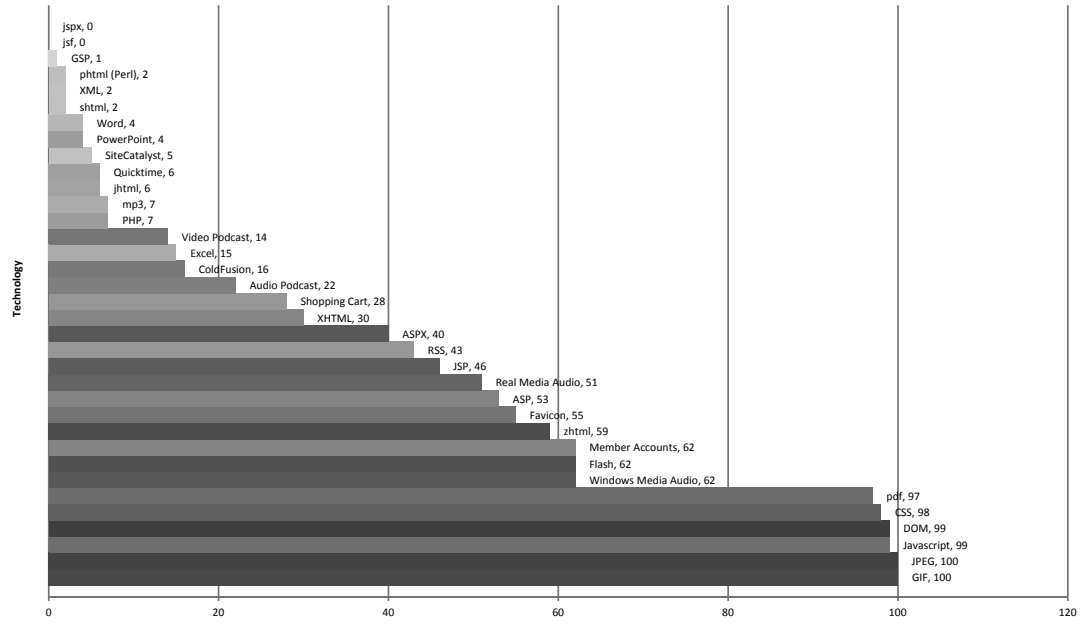
Web Tool	500 Companies		100 Companies	
	Freq.	%	Freq.	%
Javascript	495	99.8	99	99.0
DOM	495	99.8	99	99.0
CSS	492	99.2	98	98.0
Flash	280	56.5	62	62.0
zhtml	260	52.4	59	59.0
ASP	232	46.8	53	53.0
ASPX	162	32.7	40	40.0
JSP	151	30.4	46	46.0
ColdFusion	96	19.4	16	16.0
PHP	45	9.1	7	7.0
shtml	26	5.2	2	2.0
jhtml	14	2.8	6	6.0
phtml	3	0.6	2	2.0
GSP	1	0.2	1	1.0
jsf	1	0.2	0	0
jspx	1	0.2	0	0
XHTML	140	28.2	30	30.0
RSS	114	23.0	43	43.0
XML	11	2.2	2	2.0
SiteCatalyst	28	5.6	5	5.0
Member Accounts	194	39.1	62	62.0
Shopping Carts	88	17.7	28	28.0

Second Category

The items in the second category (see Table 2 and Figure 1) with the highest usage by count are GIF (496, 100%), JPEG (496, 100%), PDF (482, 97.2 %) and Windows Media Audio (WMA) (306, 61.7 %). The most popular audio formats were WMA, Real Media Audio (RMA) (240, 48.4%), Audio Podcasts (54, 10.9%), and Mp3 (15, 3.0%). The most used video formats were Video Podcasts (27, 5.4%) and QuickTime (9, 1.8%). The GIF and JPEG image formats were used by every company in the study. However, less than half made use of Favicons (215, 43.3%), the icons that can sometimes be found next to the URL in the web browser address bar. The document formats with the highest usage are PDF, Excel (73, 14.7%), MS Word (50, 10.1%), and PowerPoint (13, 2.6%).

In analyzing the data of the top 100 companies (see Table 2 and Figure 2), we found that GIF and JPEG (100, 100%) remained on top, followed by PDF (97, 97.0%), and WMA (62, 62.0%). WMA once again topped the list of audio media followed by RMA (51, 51.0%), Audio Podcasts (22, 22.0%), and Mp3 (7, 7.0%). Video Podcasts (14, 14.0%) were still used more often than QuickTime (6, 6.0%). Favicons (55, 55.0%) were used by more than half of the top 100 companies.

Figure 2
Frequency Use for Top 100 Companies



Document format preferences did not change much. PDF had the highest usage followed by Excel (15, 15.0%) and then PowerPoint (4, 4.0%) and MS Word (4, 4.0%).

First Category:Jobs

Examining the data from the job postings we uncover one of the weaknesses in examining the code from a posted website. The job postings most often requested proficiency in SQL (64, 51.2%). By examining the code we only guess that the programmers had to be proficient with SQL especially in the cases where the website allowed access to user accounts and shopping carts. Java (50, 40.0%) was the most frequently required programming language follows by JavaScript and ASP (41, 32.8% each), PHP (35, 28.0%), JSP and AJAX (22, 17.6% each), Perl (13, 10.4%), ColdFusion (7, 5.6%), JSF (5, 4.0%), TCL (3, 2.4%), and Ruby (2, 1.6%). For the development of webpages HTML (49, 39.2%) topped the list, then CSS, (47, 37.6%), XML (30, 24.0%), XHTML (11, 8.8%), and DHTML (10, 8.0%). A few miscellaneous skills were also required, Flash (27, 21.6%), UNIX/Linux (22, 17.6%), Access, RSS, and EDI (1, 0.8% each).

Second Category: Jobs

Skills in the second category were absent from the job announcements. Job announcements made reference to good visual skills, good communica-

Table 2
Second Category
Frequency Counts and Percentages

Web Tool	500 Companies		100 Companies	
	Freq.	%	Freq.	%
GIF	496	100.0	100	100.0
JPEG	496	100.0	100	100.0
PDF	482	97.2	97	97.0
WMA	306	61.7	62	62.0
RMA	240	48.4	51	51.0
Audio Podcasts	54	10.9	22	22.0
Mp3	15	3.0	7	7.0
Video Podcasts	27	5.4	14	14.0
QuickTime	9	1.8	6	6.0
Favicons	215	43.3	55	55.0
Excel	73	14.7	15	15.0
MS Word	50	10.1	4	4.0
PowerPoint	13	2.6	4	4.0

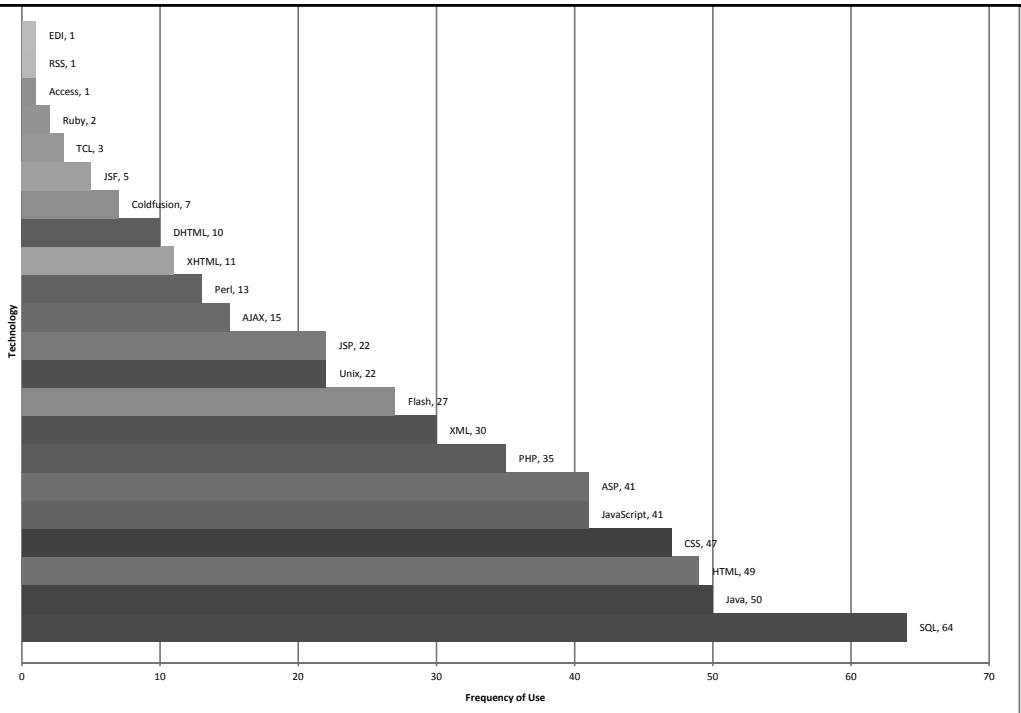
tion skills, etc. and so we feel that understanding how to use and create documents, images, and videos are skills that are either understood or are not required at this level. As part of the standard curriculum students should be exposed to word processing, spreadsheets, and presentations. The creation of images and video may be the responsibility of another department that delivers the finished product to the web programmer. The web programmer may not need to understand how to put the images and video together, but it may be expected that he should know how to incorporate the image or video into a webpage.

Correlation Analysis

Upon running a correlation analysis of the data collected from the 500 companies, we found very few strong relationships. Most of the correlations, in both the positive and negative directions, were less than 0.5. JavaScript and DOM were perfectly correlated as per expectations. The correlation between member accounts and shopping carts was .582 showing that shopping carts were used by roughly half the companies when member accounts were also used. WMA and RMA had a correlation of .746. WMA was the most widely used but if it was used the probability was high that RMA was also used. This relationship is expected. In striving to accommodate the many different users' preferences, it is advisable to use multiple formats. Although WMA may be sufficient as many people use Microsoft operating systems, many people do not like using Microsoft products. The correlation between Audio Podcasts and Video Podcasts was .458. We can expect this correlation to strengthen as Podcasts become more popular. A correlation between JavaScript and CSS of .498 appeared, but this is most likely a coincidence caused by frequency. See Table 3.

We expected to find a stronger correlation between Microsoft products as they are often used together. However, the strongest correlation we found was .711 between Excel and Word with a very low correlation with PowerPoint. The same correlation was run using data from the top 100 companies with similar results. JavaScript and DOM were perfectly correlated in this data set. The correlation between shopping carts and member accounts went down to .488 probably because most of the top 100 are not retail outlets and use their sites for promotion, advertisement, and notifying investors. The correlation between WMA and RMA increased to .799. The increase could be attributed to the larger size of these

Figure 3
Frequency for Job Postings



companies. Larger companies have the available resources to create both file types and might need to do so to reach a wider customer base. The correlation between Audio and Video Podcasts decreased slightly to .481. A few strong correlations between XML and Word (.700), PowerPoint and shtml (.700), and PHP and Word (.544) were discovered, however, this is probably the result of chance. The correlation between CSS and JavaScript increased to .704, but as in the earlier case, is doubtless due to coincidence. See Table 4.

The strength of the relationship between Microsoft products increased slightly for the top 100 companies in some instances. The correlation between PowerPoint and Word increased to .479 from .385, and the correlation between Excel and Word increased to .343 from .270. We feel that this increase signifies that the top 100 companies value the ability to reach more customers by including more file types for download.

In examining the correlations among the data taken from the job postings several interesting correlations were made. Most of the correlations are below .5. However, the correlation between JSF and AJAX is .553. This is most-likely caused by the similar dependence of both technologies on XML. There is a .395 correlation between SQL and PHP. PHP is highly dependent on SQL for database functionality. Java and JSP (.395) and JSP and JSF (.442) have higher correlations than most, which is most-likely attributed to the fact that JSP and JSF are both derived from Java. HTML and JavaScript (.347), HTML and CSS (.324), and CSS and JavaScript (.372) correlate higher as well since these three technologies are highly interdependent. We expected to find a much higher correlation among these three for

Table 3
Significant Correlations for 500 Companies

	Javascript	DOM	CSS	Windows Media Audio	Real Media Audio	Member Accounts	Shopping Cart	Excel	Audio Podcast	Word	Video Podcast	PowerPoint
Javascript	1.000											
DOM	1.000	1.000										
CSS	0.498	0.498	1.000									
Windows Media Audio	0.057	0.057	0.022	1.000								
Real Media Audio	0.044	0.044	0.042	0.746	1.000							
Member Accounts	0.036	0.036	-0.020	-0.045	-0.063	1.000						
Shopping Cart	0.021	0.021	-0.017	-0.004	-0.018	0.582	1.000					
Excel	0.019	0.019	0.038	0.174	0.201	0.030	0.000	1.000				
Audio Podcast	0.016	0.016	0.032	0.035	0.050	0.145	0.176	0.001	1.000			
Word	0.015	0.015	0.030	0.167	0.158	-0.034	-0.051	0.711	-0.010	1.000		
Video Podcast	0.011	0.011	0.022	0.024	0.052	0.136	0.214	0.000	0.458	0.008	1.000	
PowerPoint	0.007	0.007	0.015	0.051	0.043	0.024	0.023	0.110	0.105	0.113	0.127	1.000

Table 4
Significant Correlations for Top 100 Companies

	Javascript	DOM	CSS	Windows Media Audio	Member Accounts	Real Media Audio	Shopping Cart	Audio Podcast	Excel	Video Podcast	PHP	PowerPoint	Word	XML
Javascript	1.000													
DOM	1.000	1.000												
CSS	0.704	0.704	1.000											
Windows Media Audio	0.128	0.128	0.035	1.000										
Member Accounts	0.128	0.128	0.035	-0.061	1.000									
Real Media Audio	0.103	0.103	0.146	0.799	-0.108	1.000								
Shopping Cart	0.063	0.063	0.089	0.029	0.488	0.121	1.000							
Audio Podcast	0.053	0.053	0.076	0.068	0.068	0.086	0.099	1.000						
Excel	0.042	0.042	0.060	0.040	0.156	0.076	0.175	0.047	1.000					
Video Podcast	0.041	0.041	0.058	0.138	0.078	0.165	0.198	0.481	-0.008	1.000				
PHP	0.028	0.028	0.039	0.053	-0.108	0.112	0.003	-0.051	0.214	0.115	1.000			
Power Point	0.021	0.021	0.029	0.055	0.055	-0.004	-0.014	0.138	0.200	0.212	0.144	1.000		
Word	0.021	0.021	0.029	0.055	-0.050	-0.004	-0.127	0.015	0.343	0.065	0.544	0.479	1.000	
XML	0.014	0.014	0.020	0.112	0.112	-0.003	-0.089	0.097	0.148	0.241	0.335	0.700	-0.020	1.000

the same reason. The correlation between XML and JSP (.331) and XML and JSF (.363) are presumably correlated because they are partially derived from XML.

DISCUSSION

What this means for IS students is that, as explained in the introduction, the curriculum needs to contain the components that will be most valuable to them in obtaining and maintaining employment. The largest companies in the U.S. drive industry in many ways, both through direct means, such as demanding a certain skill set in employees, and indirect means, such as when smaller businesses seek to emulate the larger businesses. In either case, employers will be looking for potential employees with skills that match the data we have obtained. The IS curriculum needs to close the gap between industry and academia if it is to accomplish the task of preparing students for future careers.

The way that curricula can continue to prepare students for the future is through periodic evaluation and redesign. Closing the gap will always be an iterative process since technological progress will only continue to speed up. Schools should evaluate the IS program on a yearly basis to make sure that the material is meeting the needs of the students and industry.

A "one size fits all" solution is very difficult to find if the curriculum is going to be industry driven, which it needs to be. Obviously each school will have to decide which mixture will be the best fit

Table 5
Significant Correlations for Job Posting Data

	SQL	Java	HTML	CSS	Java Script	ASP	PHP	XML	JSP	AJAX	JSF
SQL	1.000										
Java	0.013	1.000									
HTML	0.095	-0.054	1.000								
CSS	0.031	-0.229	0.324	1.000							
JavaScript	0.068	-0.049	0.347	0.372	1.000						
ASP	-0.102	-0.292	-0.107	-0.085	-0.053	1.000					
PHP	0.395	-0.218	-0.099	0.068	0.209	-0.208	1.000				
XML	0.211	0.229	0.009	-0.011	0.086	-0.073	-0.058	1.000			
JSP	0.241	0.395	0.059	-0.055	-0.054	-0.099	-0.054	0.331	1.000		
AJAX	-0.033	0.151	-0.044	0.272	0.109	0.057	-0.175	0.254	0.217	1.000	
JSF	0.118	0.250	-0.164	0.094	-0.143	-0.143	-0.127	0.363	0.442	0.553	1.000

for its students. Whether to teach one scripting language or to teach multiple scripting languages will have to be addressed, along with document types, audio and video, animation, graphics, etc. In addition to learning scripting languages, the students should be familiar with using the various file types in web sites and maybe even a little bit of editing for each of the desired file types. It may be desirable to teach a variety of scripting languages. In the top 100 companies, 73 companies chose to use more than one programming language, sometimes on the same site. Out of the 500 companies, 328 companies used more than one programming language. And out of the 125 job announcements 68 required proficiency in more than one programming language.

Technologies with a high usage rate are probably mainstream which is why these large companies are using them. The support for these technologies is in place and familiarity is high. These large companies can get maximum value by using these products as opposed to a more obscure product. For students, this translates into more in-demand skills for the workplace.

We recommend that JavaScript and the associated DOM should be made part of the IS curriculum. The high usage rate indicates that IS graduates will encounter JavaScript and DOM sometime during their employment, most-likely in the early stages of employment. For a more robust scripting language we recommend ASPX, the new version of ASP, due to the prevalence of Microsoft products. However, if an opensource solution is desired JSP is the recommended language. Flash is also highly recommended. Over half of the sites surveyed made use of Flash, indicating a need for knowledgeable employees. Finally, knowledge of how best to implement member accounts should be part of the IS curriculum. Many of the sites employed member accounts, signifying that graduates should have a solid understanding of the best practices for modeling member accounts.

As far as the recommended media is concerned, image manipulation and utilization should be a component of IS education. Every web site surveyed made use of images, either JPEG or GIF images. PDF seems to be the most important document format on the web and students should learn how to create and use PDFs. Web sites appear to favor WMA as the audio file of choice. Video, while not a large part of the Fortune 400, seems to be an emerging technology on the web and could be a major part of the web in the future.

If you are more interested in serving a local, rather than a nationwide, job market, Java is in demand. We expected to see higher rates of opensource or at the very least non-proprietary solutions. However, Microsoft's .Net environment was requested by more employers behind Java. The lower cost solutions such as PHP and JSP were required by fewer than expected. Flash, was not as popular with the local job market as it was with the Fortune 500 companies. It seems that local companies are more interested making their website interactive using technologies that do not require as high a cost, such as AJAX.

CONCLUSION

Closing the gap completely may be impossible. However, we do not want to be part of the problem. We have the burden of presenting relevant content to the students at our universities. We must periodically evaluate the IS program to make sure that the skills being taught match those sought by businesses. We have discussed some of the skills that 500 of the largest companies in the U.S. use in their web sites in an attempt to discover what can be done to keep the curricula relevant to both students and industry. We have also investigated job postings from local businesses to determine if the local businesses require different skills than the larger, nationwide companies. From the looking at the data we have gathered it would seem that the local industries require a slightly different mix, but that it still follows the larger businesses to a degree.

In the future it would be advantageous to determine the other interpersonal and business skills that these employers require and try to match them up with the skills listed in this paper in an attempt to determine what can be done to better prepare students for rewarding careers in either large, nationwide businesses or in small, local businesses.

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An Assessment of the Growth in Coverage of Social and Environmental Issues in Graduate Accounting Courses

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ABSTRACT

The paper examines if there has been an increase in the attention paid to social and environmental issues (SEI) in accounting curricula. Using schools participating in the Aspen Institute's Beyond Grey Pinstripes (BGP) program, we measure the increase in the number of accounting courses incorporating SEI across the biennial application years of 2005, 2007 and 2009. We also examine the percentage of SEI coverage in accounting courses between 2007 and 2009. Our findings suggest that there was not an appreciable increase in the number of accounting courses dealing with SEI between 2005 and 2007, but that the increase was significant during the period from 2007 to 2009. Further, the increase over the four-year period from 2005 to 2009 was also significant. In addition, there is a significant increase in the percentage of SEI coverage in accounting courses between 2007 and 2009. Implications of these findings are discussed.

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INTRODUCTION AND LITERATURE REVIEW

> "We, the human species, are confronting a planetary emergency—a threat to the survival of our civilization that is gathering ominous and destructive potential even as we gather here. But there is hopeful news as well: we have the ability to solve this crisis and avoid the worst—though not all—of its consequences, if we act boldly, decisively and quickly."

Numerous appeals, echoing the one above, have also come from professional accounting associations in both Europe and the United States. In Europe, the British Accounting Association called for consideration of changes to accounting education and specifically targeted an increase in ethics education (Ravenscroft & Williams, 2004). This challenge continued throughout the decade when the International Accounting Education Standards Board, in 2008, informed business schools that there needed to be a greater discussion and debate on the role of ethics in the curriculum, with a clear bias toward an increase in ethics education (Cooper, Leung, Dellaportas, Jackling & Wong, 2008). European attention to social and sustainability stewardship was also voiced by the Federation of European Accountants when, in 2008, they issued a call for action: "Accountants must have an understanding of sustainability issues. ... Sustainability needs to be integrated in the training curriculum of the accountants. ... [and] ... Accountants have a role to play in increasing awareness of sustainability issues within businesses of all sizes" (FEE Web site).

In the United States, calls for greater attention to ethics, social issues and sustainability were also heard during the 2000s. The National Association of State Boards of Accountancy cited recent ethics scandals as cause for business schools to

demonstrate more ethics education in accounting courses (Blanthorne, Kovar & Fisher, 2007). The American Institute of Certified Public Accountants (AICPA), recognized as the premier association for CPAs, recommended that attention to forensic accounting be accelerated within business schools. The attention to ethics content also was increased in the CPA exam, required for the licensing of all Certified Public Accountants in the United States (AICPA Web site).

Academic scholars have joined in the call for greater attention to the general fields of social and environmental stewardship, including ethics education. Nowell and Laufer (1997) highlight the importance of a social and ethical focus in the accounting curriculum due to the frequent exhibition of antisocial behavior in the profession. The challenge was echoed in the United Kingdom by Ghaffari, Kyriacou and Brennan (2008) and Fisher, Swanson and Schmidt (2007) in the United States. Grey and Collison (2002) argue that accounting is supposed to serve the public interest and thus the pursuit of sustainability is central to that public interest. In the same spirit, Sikka, Haslam, Kyriacou and Agrizzi (2007) argue that the accounting profession, given recent scandals, needs to rebuild confidence in accounting and its jurisdictions by reaffirming that accounting education is or will be devoted to producing reflective accountants through educational processes focusing on sound education principles and ethics.

Taken together, the numerous appeals of political leaders, professional associations and academic scholars lead us to conclude that the importance of ethical, social and environmental issues is firmly entrenched in the future of business commerce and our society's well-being and as such should be reflected in the curriculum offered to business students. Therefore, we pose the question: Are college and university business schools responding to these challenges to attend to social, ethical and sustainability issues in the curriculum? If answered affirmatively, it would seem reasonable to expect an increase in the number of courses focusing on these issues and/or an increase in the extent to which existing courses cover these topics.

To explore this question, we analyze the Aspen Institute's Beyond Grey Pinstripes (BGP) databases from 2005, 2007 and 2009 (the first three years of the program) to assess if business schools are being responsive to institutional and societal pressure to change their accounting curricula to include greater attention to social, ethical and sustainability issues. The BGP databases are described more fully later in the Methodology section of this paper and include a self-reported description of a business school curriculum addressing social and environmental issues (SEI).

HYPOTHESIS DEVELOPMENT

Emerging in the 1970s, institutional theory considers the processes by which organizations, such as businesses, and their schemas, rules, norms and routines, become established as guides for behavior (Meyer and Rowan, 1997). Rather than a reliance on the rational actor model of classical economics, institutional theory emphasizes a social scientific perspective where organizational actors, and by association their organizations, seek to conform to the rules and beliefs prevailing in the external environments, as exhibited by professional associations, industry or society at large (DiMaggio and Powell, 1983; Scott, 1995). The effects that institutional pressures may have on a business organization, its management and its stakeholders have been explored at the multinational level regarding competitive strategy (Martinsons, 1993; Porter, 1990) and at the micro human resources management practices level (Rosenzweig & Singh, 1991; Zaheer, 1995). Particular to curriculum development in business schools, institutional pressures can result in an assortment of strategic responses, including: mimicry, coercion and normative pressure. While these three forms of institutional pressure are distinct in their origins and properties, they often work together as influences on organizational action.

Mimicry Pressure

Institutional pressure takes the form of mimicry when competition from other schools is emphasizing certain courses or programs, and an institution follows suit to maintain its competitive position among recruiters or to remain competitive in seeking new school applicants. We see this form of institutional pressure when looking at investigations of accounting curricula that identified increased coverage of fields relevant to the Beyond Grey Pinstripes emphasis.

Madison and Schmidt (2006) reported an increase in coverage of ethics and social responsibility in accounting courses. Similarly, Christensen, Pierce, Hartman, Hoffman and Carrier found that a "high percentage (84%) of top MBA programs require ethics or corporate social responsibility components in their curricula, many as stand-alone courses or combined courses of ethics and sustainability issues" (2007: 347). There appears to be more than merely an introduction of courses focusing on ethics, social responsibility and sustainability within the accounting curriculum. According to Cornelius, Wallace and Tassabehji, "ethics education has migrated from an issue-based, stand-alone course to integrated coverage of ethical and sustainability topic across the undergraduate and graduate curricula" (2007: 134).

There appears to be sufficient evidence to warrant a further analysis of the role that mimicry institutional pressure plays on accounting curricula and the presence and/or increase in coverage of social and environmental issues in accounting courses. If evidence to support the expectation of additional course development and/or additional coverage of such topics exists, we can conclude that, due to institutional pressures, business schools in general are increasing their social and environmental issue coverage possibly in order to maintain their competitive position among recruiters or to be competitive in seeking new school applicants.

Coercion and Normative Pressure

Coercion pressure can also cause educational institutions to change their curricula. Schools facing coercive pressure change their curricula because professional associations are demanding conformity to their standards for professionals; thus schools feel that they must change their curricula to be seen as remaining in sync with these demands. Similarly, normative pressure is created when various public or social figures call for business schools to give weight or urgency to a specialized theme or coursework for the betterment of society. Since business schools are an integral part of society, they face normative pressure to adopt this new, "better," or more ethical focus in their programs. These institutional pressures may become normalized and institutionalized within an organization, representing a "new norm" in how the organization operates by creating a new threshold for acceptable behavior.

There are numerous calls from professional associations, governmental regulatory agencies, and other organizations for the accounting profession and accounting education in business schools to focus on social and environmental issues. These appeals can take the form of coercion pressure in that demands on the business school's accounting curriculum must be met or negative consequences may ensue. In addition, there is a form of normative pressure in that these pleas challenge the accounting profession to hold true to its roots in serving the public interest.

Previous research generally provides strong normative support for greater attention to social and environmental issues in the accounting curriculum. Guffey and McCartney (2008) investigated the impact of an ethical decision-making construct and found that perceived importance of an ethical issue was significantly related to both ethical judgment and behavioral intention. The authors concluded that greater attention to ethical decision making in the accounting curriculum would likely lead to better decision making in the students' current and future careers as accountants.

In a United Kingdom setting, Holland looked at one course—a final-year, undergraduate module—that informed students about corporate social responsibility from an accounting perspective. The overwhelming educational success of this course, with some minor adjustments during its multiple year run, led Holland to conclude that this type of course must be required, that "its value cannot be underestimated" and that it must be recognized as essential for those designing management education curricula (2004: 416).

Given the preponderance of external pressure from professional associations both in Europe and the United States, as well as from various academicians, collectively, this institutional force may result in business schools conforming to these demands in the form of *increased coverage* of social and environmental issues in existing courses or the *creation of new courses* in these fields. Such responses would be indicative of institutional pressure that often results in a normative response—how to make the curriculum better or more socially responsive—or in a coercion

response—changes must be made or else negative consequences may occur.

Based on the considerable evidence of institutional pressure upon business schools and their accounting curricula, we hypothesize that:

H1a: There was a significant increase in the number of accounting courses addressing social and environmental issues (SEI) between 2005 and 2007 among initial applicants (those business schools that first applied for ranking by the Aspen Institute's Beyond Grey Pinstripes program in 2005); and

H1b: There was a significant increase in the number of accounting courses addressing social and environmental issues (SEI) between 2007 and 2009 among initial applicants (those business schools that first applied for ranking by the Aspen Institute's Beyond Grey Pinstripes program in 2005).

Based on the assumption that significant curriculum change does not occur quickly in academia, we further hypothesize that:

H1c: There was a significant increase in the number of accounting courses addressing social and environmental issues (SEI) between 2005 and 2009 among initial applicants (those business schools that first applied for ranking by the Aspen Institute's Beyond Grey Pinstripes program in 2005).

Hypotheses 1a through 1c deal exclusively with initial applicants - those schools that applied for BGP ranking during the program's first year of existence. One could assume that these 21 schools did so because they had already adjusted their accounting programs in response to the appeals of their various constituencies to include more SEI in their accounting curricula. In essence, these schools may have been more progressive in their approaches to curriculum development than those schools that did not apply for BGP ranking until 2007 or 2009. Organizational theory would predict that, due to mimicry, coercion and/or normative pressure, other schools might lag behind the initial applicants. However, we would expect to observe the same pattern of behavior (significant increases in the number of accounting courses dealing with SEI) over the first two years that later applicants participated in the BGP program. Therefore, we hypothesize that:

H2: There was a significant increase in the number of accounting courses addressing social and environmental issues (SEI) between 2007 and 2009 among later applicants (those business schools that did not apply for ranking by the Aspen Institute's Beyond Grey Pinstripes program until 2007).

As discussed above, responses to the various forms of institutional pressure may be seen not only in the creation and offering of new accounting courses emphasizing SEI but also in an increase in the amount of coverage of SEI in existing courses. The BGP application asked schools to indicate the percentage of coverage of SEI in each course listed in the application (0-25%, 26-50%, 51-75% and 76-100%). This information was requested in 2007 and 2009, but not in 2005. Therefore, we are only able to assess whether there had been any changes in the percentage of coverage of SEI in accounting courses over this limited period of time. We review the data for all schools in the BGP database in 2007 and in 2009 and then limit the analysis to include only those schools that applied in *both* 2007 and 2009. The latter comparison allows for a more focused assessment of responses to institutional pressures resulting in schools increasing their attention to SEI in existing courses.

H3a: There was a significant increase over time in the percentage of coverage of social and environmental issues (SEI) in accounting courses offered by all business schools that applied for ranking by the Aspen Institute's Beyond Grey Pinstripes program (when the percentage of coverage in 2007 is compared to the percentage of coverage in 2009).

H3b: There was a significant increase in the percentage of coverage of social and environmental issues (SEI) in the accounting courses offered among those business schools that applied for ranking by the Aspen Institute's Beyond Grey Pinstripes program in both 2007 and 2009.

METHODOLOGY

Sample

Attention to social and environmental management is the mainstay of the Aspen Institute's program entitled Beyond Grey Pinstripes (BGP). The BGP program is a biennial survey and alternative to the business school rankings conducted by business periodicals which rely upon impressions provided by business school deans. Rather than assessing the opinions of business school administrators, the BGP requires schools to submit detailed course information about their full-time graduate programs' curricula. The BGP mission is to evaluate and promote innovative full-time MBA programs from around the world that are integrating SEI into their curricula. It is important to note that BGP's definition of SEI is quite broad and includes topical coverage of sustainability, social issues, social responsibility, corporate citizenship, corporate social reporting, triple bottom line, balanced scorecard, ethical analysis, ethical compliance, ethics training, and professional responsibility. Therefore, SEI refers to the broad areas of ethics, social responsibility and sustainability.

The BGP instructions to the school's reporter included:

> "This section asks about courses being offered at your business school that address social, environmental, and ethical issues in any way. We encourage you to cast a wide net when submitting courses: while courses such as 'Business Ethics' clearly are to be included in this survey, we seek courses that even broach these topics in one class session. For example, a core Finance course that has one section devoted to environmental, social, or ethical considerations or perhaps uses a handful of case studies which address these issues would 'count' in our survey. Also, as further illustration of the diversity of issues this survey covers, content pertaining to 'theories of the firm,' values-based leadership, and diversity/cross-cultural management would all most definitely 'count'" (Aspen Institute's Beyond Grey Pinstripes Web site).

Schools are required to provide verifiable support for inclusion of their courses in the BGP evaluation process through a course description, syllabus and/or URL.

The data are self-reported by each applicant school and checked by a team of trained experts supporting the Aspen Institute's BGP program who evaluate, code and rank each school's information. The BGP program has grown in recognition and interest, as evidenced by the significant and steadily increasing number of applicant schools: 91 in 2005, 112 in 2007 and 138 in 2009. These schools are primarily from the United States (67% in 2005, 68% in 2007 and 65% in 2009), with representation from Canada, Mexico, Europe, Asia, South America, and Africa. By 2009, 48 non-United States academic institutions participated in the BGP program. These schools were located in Australia, Belgium, Brazil, Canada, China, Columbia, England, Finland, France, Germany, Holland, India, Korea, Japan, Mexico, Netherlands, Pakistan, Philippines, Scotland, Slovenia, South Africa, Spain, and Switzerland.

Some schools had only a single accounting course that addressed SEI, but many schools submitted four to six accounting courses that touched on SEI to varying degrees. In fact, three schools indicated that they had 10 or 11 accounting courses qualifying for BGP evaluation, and one school reported a total of 15 courses. By reviewing the BGP databases from 2005, 2007 and 2009, we investigate whether there were any changes in the number of courses offered and/or the percentage of topical coverage in the accounting curriculum involving the teaching of SEI using institutional theory as the theoretical explanation for any changes observed. As reported by the Aspen Institute, the number of first-time applicants with accounting courses increased steadily from 2005 to 2009 (21 first-time applicants in the program's first year of existence, 26 in 2007 and 40 in 2009).

Measures

A one-tailed, paired sample t-test is used to assess the amount of change in the number of accounting courses reported in the BGP database from one year to the next, e.g., from 2005 to 2007 and from 2007 to 2009.

To assess the changes in the percentage of coverage of SEI in accounting courses over time, we employ a chi square test. The chi square test is used to explore whether the distributions within two sets of observations differs. Specific to this analysis, a chi square test of independence is used to determine if the percentage of coverage of SEI topics in accounting courses in 2007 differs from the percentage of coverage of these issues in the 2009 BGP database. The chi square test generates a chi square statistic (X^{2}) which can be assessed based on a predetermined alpha level of significance (0.05).

RESULTS

To test Hypothesis 1a, we examine the data reported by those schools applying for BGP ranking in 2005, the first year that the BGP program was offered. As summarized in Table 1, Row 1 below, a total of 21 applicant schools, in both the U.S. and abroad, reported a combined total of 59 accounting courses that dealt, at least to some extent, with SEI as outlined in the BGP guidelines. Those same 21 schools reported a total of 65 such courses in 2007, a modest increase of only 10 percent. A one-tailed, paired sample t-test indicates that this increase is not significant (p = 0.255) and thus, *Hypothesis 1a is not supported by our data*.

To test Hypothesis 1b, we compare the number of accounting courses offered by these same 21 schools in 2007 to the number offered in 2009. In 2009, the 21 applicant schools reported that the number of accounting courses addressing SEI had grown from the 65 offered in 2007 to 94, an increase of approximately 45 percent (Table 1, Row 1). A one-tailed, paired sample t-test of this difference shows that the increase from 2007 to 2009 is, in fact, significant (p = 0.005), thus *supporting Hypothesis 1b*.

To investigate Hypothesis 1c, we further analyzed the overall increase in the number of accounting courses offered by these schools over the four-year period from 2005 to 2009. This hypothesis is based on the assumption that significant curriculum change generally occurs incrementally, rather than over short periods of time. The statistical analysis showed that the increase from 59 to 94 accounting courses addressing SEI is significant (p = 0.013), *supporting Hypothesis 1c*.

Hypothesis 2 predicts that there will be a significant increase in the number of accounting courses dealing with SEI over the period from 2007 to 2009 for those schools that did not initially apply for ranking until the second cycle of the program's existence (2007). Table 1, Row 2 indicates that the number of first-time applicants in 2007 (26 schools) was somewhat higher than in 2005 (21 schools). In these 26 schools, the number of accounting courses with at least some coverage of SEI increased from 61 in 2007 to 86 in 2009 (an increase of approximately 41%). Unlike our observation of no significant increase in the number of accounting courses covering SEI over the applicants' first two years of participation in the BGP program when the school initially applied in 2005 (H1a), a one-tailed, paired sample t-test indicates that the increase is significant in those schools that first applied during the second cycle of the program's existence (as it is for H1b) (p = 0.029), *supporting H2*.

Hypotheses 3a and 3b predict that schools may respond to institutional pressures by devoting more time to SEI in each course offered, as well as by increasing the absolute number of courses (as previously tested in Hypotheses 1 and 2). Table 2 reports the number of courses offered within each category of coverage of SEI topics (1% to 25%, 26% to 50%, 51% to 75% and 75% to 100%) for all schools applying in 2007 compared to all

TABLE 1
BEYOND GREY PINSTRIPES SCHOOLS AND ACCOUNTING COURSES

	Number of Schools	Number of Accounting Courses Addressing Social and Environmental Issues (SEI):		
		In 2005	In 2007	In 2009
Schools applying three times: in 2005, 2007 and 2009	21	59	65	94
Schools applying twice: in 2007 and 2009	26	N/A	61	86
Schools applying once: in 2009	40	N/A	N/A	79

schools applying in 2009. A chi-square test shows that distributions within the categories in 2007 are marginally different from the distributions in 2009 ($X2 = 6.718$, p = 0.081) and could be interpreted as *limited support for Hypothesis 3a*.

However, visual examination of the data in Table 1 suggests that the shift is toward devoting less, rather than more, time to SEI in individual accounting courses. Table 2 shows that 50 percent of the courses reported in the 2007 database were devoting the least amount of time to SEI topics (1% to 25%) and that this percentage grew to 60.2 percent of the courses in the 2009 database. At the same time, 12.5 percent of the courses reported in 2007 were devoting the greatest amount of time to SEI topics (76% to 100%), but by 2009, the percentage had fallen to 6.7 percent. The chi-square test allows us to conclude that the distributions were different over the two-year period, but we are limited to visual inspection of the data to draw conclusions about the direction of the change.

To test Hypothesis 3b, we limit the sample to only those schools applying for BGP ranking in both 2007 *and* 2009 (see Table 3). A chi-square test of these distributions reveals that they are significantly different from each other ($X2 = 2.518$, p = 0.047), which would tend to *support Hypothesis 3b*. However, examination of the data in Table 3 reveals the same pattern as observed in the data for all schools reported in Table 2. There appears to have been notable growth in the percentage of courses devoting minimal coverage to SEI over the 2007 to 2009 time period (an increase from 50.8% to 57.7%) accompanied by a decline in the percentage of courses devoting the greatest amount of coverage of these topics (a decrease from 13.3% to 8.7%). Thus, while the chi-square test shows that the distributions have *changed,* the data seems to suggest that there may actually have been a decrease in the percentage of time being devoted to SEI in individual accounting courses over the 2007 to 2009 time period.

TABLE 2
Percentage of Course Devoted to Social and Environmental Issues (SEI), all Schools in Databases, 2007 And 2009

Percentage of course devoted to SEI	Number of courses, all schools applying in 2007	Number of courses, all schools applying in 2009
1% to 25%	76 (50.0%)	162 (60.2%)
26% to 50%	49 (32.2%)	72 (26.7%)
51% to 75%	8 (5.3%)	17 (6.3%)
76% to 100%	19 (12.5%)	18 (6.7%)
N (from 2007) = 152; *N (from 2009) = 269;* $X^2 = 6.718$, p = 0.081		

Table 3
Percentage of Course Devoted to Social and Environmental Issues (SEI), Only Schools in Both 2007 And 2009 Databases

Percentage of course devoted to SEI	Number of courses in 2007, schools applying in 2007 and 2009	Number of courses in 2009, schools applying in 2007 and 2009
1% to 25%	65 (50.8%)	113 (57.7%)
26% to 50%	39 (30.4%)	54 (27.5%)
51% to 75%	7 (5.5%)	12 (6.1%)
76% to 100%	17 (13.3%)	17 (8.7%)
N (from 2007) = 128; *N (from 2009) = 196;* $X^2 = 2.518$, p = 0.047 *		

DISCUSSION AND IMPLICATIONS

Before launching into a discussion of our findings, it is important to note a few limitations. First, our sample consists of a self-motivated group of schools that chose to participate in the Aspen Institute's Beyond Grey Pinstripes program. Rather than a cross-sectional sample of all business schools, these schools may be predisposed toward SEI in their curriculum, thus prompting their application to the BGP program. In addition, the information contained in the Aspen Institute's database is self-reported

data, although evaluated and scrutinized for authenticity by the Aspen Institute's staff of reviewers. Nonetheless, we are dependent upon the schools to report accurately the number of courses in their accounting curriculum dealing with SEI and the percentage of SEI coverage in these courses. Finally, only limited, quantitative data was supplied by the Aspen Institute, prohibiting us from analyzing in greater depth the content of the courses or approaches taken to emphasize SEI. These limitations could affect the results of our study and temper the conclusions drawn from this work. Nonetheless, we believe important lessons can be learned from our assessment of the BGP database of curriculum information.

Whether it is the lofty challenge voiced by former Vice President Al Gore at the Nobel Prize in Peace ceremony in 2007 or calls for greater attention to SEI in the accounting curriculum expressed by various accounting professional associations throughout the 2000s, it appears that business schools in general and accounting departments in particular in those schools participating in the Beyond Grey Pinstripes ranking program have responded positively to those calls. This may indicate that the three pressures of institutional theory had some influence on the accounting curriculum among those schools included in the BGP database. There is significant growth in accounting courses with SEI from 2007 to 2009 and from 2005 to 2009 among the initial applicant schools for both time periods (providing support for H1b and H1c). In addition, there is a significant increase in the number of courses offered with SEI from 2007 to 2009 for schools not part of the initial applicant group (providing support for H2).

As mentioned above, a word of caution is needed. These schools may reflect the more motivated schools rather than a random sample of all business schools; however, they most likely represent those schools that are more sensitive or responsive to the institutional theory pressures coming from within and outside of academia as well. As institutional pressures for greater attention to SEI course coverage are inspired by ethical lapses and scandals in business and the emergence of greater attention to sustainability, it seems prudent for leading business schools to respond to these institutional calls for reforms of the curriculum and by increasing the number of courses addressing SEI.

The rise in the number of accounting courses covering SEI reported in the BGP database from 2005 to 2009 and from 2007 to 2009 (supporting hypotheses 1b and 1c), may not be directly attributed to any specific challenge to the business schools or their accounting departments. Yet, it does seem to reflect a response to the general institutional pressure to focus on issues such as social reporting, the triple bottom line, the balanced scorecard and a host of other topics and techniques related to social and environmental management. The coercive and normative pressure initially felt by business schools from the public and professional accounting associations may have transformed into mimicry pressure. More business schools and their accounting departments seem to have felt these pressures resulting in the strongest representation of courses focusing on SEI in the most recent BGP database (2009).

Finally, there was a shift in the percentage of SEI coverage in accounting courses, particularly when looking specifically at those schools applying for BGP review in both 2007 and 2009. However, the shift was not in the anticipated direction (an increase in SEI coverage), rather the distributions show a shift was toward courses devoting less, rather than more, time to coverage of SEI. This discovery is inconsistent with the evidence discussed above as reflective of a response to institutional pressures by the accounting curricula.

The implication for business and accounting curricula, adhering to the pattern grounded in institutional theory, is the continued attention to SEI in accounting courses. The trend toward offering more courses, as indicated by the schools involved in the BGP ranking program (94 courses in 2009), would likely continue. Further, the trend toward offering more courses, even though each course may devote a relatively small percentage of its total time to SEI (as observed in our test of Hypotheses 3a and 3b), should still provide an increase in a student's total exposure and sensitivity to the importance of these topics to the accounting profession. If business schools and their accounting departments are successfully preparing students for careers in the accounting profession, it seems reasonable that recruiters would likewise seek students educated in various social and environmental management techniques and topics. As these students become integrated into the business community and the accounting profession, the impact of the curricula trends identi-

fied in this analysis would begin to influence the practice of accounting and business practice in general—answering the calls for this attention described at the beginning of this paper.

Our results present a number of additional research opportunities awaiting scholars in the future. We encourage scholars to expand the analysis presented here to other business disciplines. For example, future research could focus on whether courses offered by finance, economics, management, marketing and other business disciplines are also responding to institutional pressures. Another avenue to explore is whether the trends toward an increase in the number of courses and percentage of SEI coverage in these courses, as found in our analysis, are evident in these other disciplines as well. Scholars may find that the institutional pressure exerted by professional accounting associations on accounting departments is unique or more powerful than in other disciplines.

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Use of Concept Maps as an Assessment Tool in Mechanical Engineering Education

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ABSTRACT

The purpose of this study to investigate, how third year mechanical engineering students are able to use their knowledge of concept maps in their study of the topic of 'Introduction to the Internal Combustion Engines (IICE)'. 41students participated in this study. Firstly, the students were taught about concept maps and then asked to draw their concept map of the topic IICE. Afterwards, two achievement tests were administered. One test, namely, knowledge applications test (KAT) included questions on the application of knowledge of the topic of IICE and other test, knowledge recall test (KRT) contained the questions that require a recall of knowledge of the topic of IICE. The students' concept maps were scored by comparing with the expert map created by the teacher. The correlation between concept map scores (CMS) and the scores in tests which measure application of knowledge (KAT) was moderate while the correlations between score of concept map and the test that measures a recall of knowledge (KRT) was weak. While achievement tests measure knowledge in different context, CMS, on the other hand, measures knowledge about related concepts and relationships among concepts. As a result, concept maps can be used as a supplementary assessment method along with achievement tests. Most of the students were satisfied with use of concept mapping in the topic of internal combustion engine. They indicated that concept mapping helps them to understand the key concepts, to connect the various concepts with each other and to correct misconceptions.

INTRODUCTION

In recent times, student's assessment of concepts has become a useful factor in the teaching methodology. Many engineering educators use achievement tests as a major tool for assessing student leaning. However, these achievement tests are limited in what they measure and questions do not always correspond to what teachers have to convey (Novak & Govin, 1984). They are often tested on the topics for that particular class, or a particular course and there is rarely an effort to measure their knowledge they have gained over a period of time. To evaluate the personal potential of the students, a teacher can take the help of applied assessment methods. In this aspect, concept map strategy becomes an important tool. Concept maps can be used as a dependable research tool which gives a great advantage in academic studies (Novak & Gowin, 1984). A concept map represents the relation between concepts in a graphical representation. Concept maps help us to simplify and present the theoretical concepts on a graphical node. Concept maps can be used as a knowledge representation tool to reflect relationship between concepts that exist within an individual's long term memory (Jacobs-Lawson and Hershey, 2002). Concept maps can be used as a learning strategy, as an instructional strategy and as a means of student assessment (Novak, J.D., 1990)

The aim of education must be to develop effective and meaningful learning and to reduce rote learning. Ausubel's theory of meaningful learning played a crucial role in the development of idea of the concept mapping (Novak, 1990). According to him, 'the most important single factor affecting learning is what student already knows'. With the help

of this important factor, Novak et al. developed a tool which was at first called 'cognitive maps' and later 'concept maps'.

The major advantage of the concept maps is that it supports visual presentation, focuses on concepts and makes learning easy (Yester, et.al. 2007). It also helps the students in study and revision. In this way, learning becomes an active process. A number of studies have shown the benefits of concept maps to evaluate the cognitive degree of a set of relevant concepts for students (Hwang, Tseng & Hwang, 2010; Liu, Don & Tsai, 2005; Panjaburee et al, 2010; Ruiz-Primo & Shavelson, 1996).

We are interested in developing different teaching learning strategies for effective learning of the concepts in mechanical engineering. We had already used evaluation of the concepts maps in the study of engineering thermodynamics. Now, we are extending this approach to the study of internal combustion engine and in the course of time, would like to extend it to other subjects in mechanical engineering and related areas.

OBJECTIVES OF THE STUDY

The purpose of the present study is to determine students' knowledge and understanding of the topic of 'introduction to the internal combustion engines' (IICE) by comparing and contrasting two different methods namely, concept maps and two achievement tests, namely, KAT and KRT.

To our knowledge, there is little published work on concept mapping in the subject of internal combustion engines. Thus, this study was organized on the basis of the following objectives:

1. To develop and implement concept mapping as a teaching learning strategy for the topic of introduction to the internal combustion engine.
2. To investigate whether a correlation exists between two achievement test, namely, KAT and KRT and their performance in creating concept maps.
3. To study the attitude of the students towards concept mapping for the topic of IICE.

METHODOLOGY

The participants consisted of 41 students enrolled in the third year mechanical engineering undergraduate students for the course of internal combustion engine. The data collected at the end of instructions consisted of the results two tests, namely, knowledge recall test (KRT) and knowledge application test (KAT), concept map scores (CMS) and later anonymous survey about the perception of the concept maps.

Instruments

Two achievement tests, KAT and KRT were administered after the completion of the instructions. Few test questions are given in Appendix 1. KAT contains questions related to the application of knowledge in different situations and it has 27 questions. The K-R 20 reliability coefficient of this test was 0. 93. KRT contains questions related with the recall of knowledge of students. It has 15 questions and the K-R 20 reliability coefficient of the instruments was 0.77.

A satisfaction questionnaire was designed to find the attitude of students towards concept mapping strategy. The questionnaire has 10 items and was rated on a five point Likert scale from 1 (strongly disagree) to 5 (strongly agree). The Cronbach Alpha coefficient of this questionnaire was 0.87.

Procedure

This study was conducted over a six lecture module on the topic of the IICE. During the fall semester, 41 third year (sixth semester) university-level mechanical engineering students were instructed to draw a concept map showing their ideas and knowledge about the topic of 'introduction of internal combustion engine'. For effective drawing of concept mapping, they were made familiar with the nature of concept maps. At the start of first hour of instruction, they were taught about the aims and the nature of concept maps.

They were provided with a non –exhaustive list of concepts of the topic of IICE. The concept list is provided in table 1. No restriction was made on the size or structure of the concept map.

TABLE 1
A USEFUL AND NON EXHAUSTIVE LIST OF CONCEPTS RESULTED DURING CLASS DISCUSSION

Engine	Ignition system	Lower thermal efficiency
Internal combustion engine	Fuel pump and nozzle	Uniform turning moment diagram
External combustion engine	Alternative fuels	Non uniform turning moment diagram
Supercharging, turbo charging	Carburetor	Cars, buses
Spark ignition engine	Gasoline	Scooters, mopeds
Compression ignition engine	Diesel	Battery, magneto, electronic ignition system
Cooling and lubrication systems	Two stroke engine	Combustion inside the cylinder
Otto cycle	Four stroke ngine	Combustion outside the cylinder
Diesel cycle	High thermal efficiency	Open cycle gas turbine
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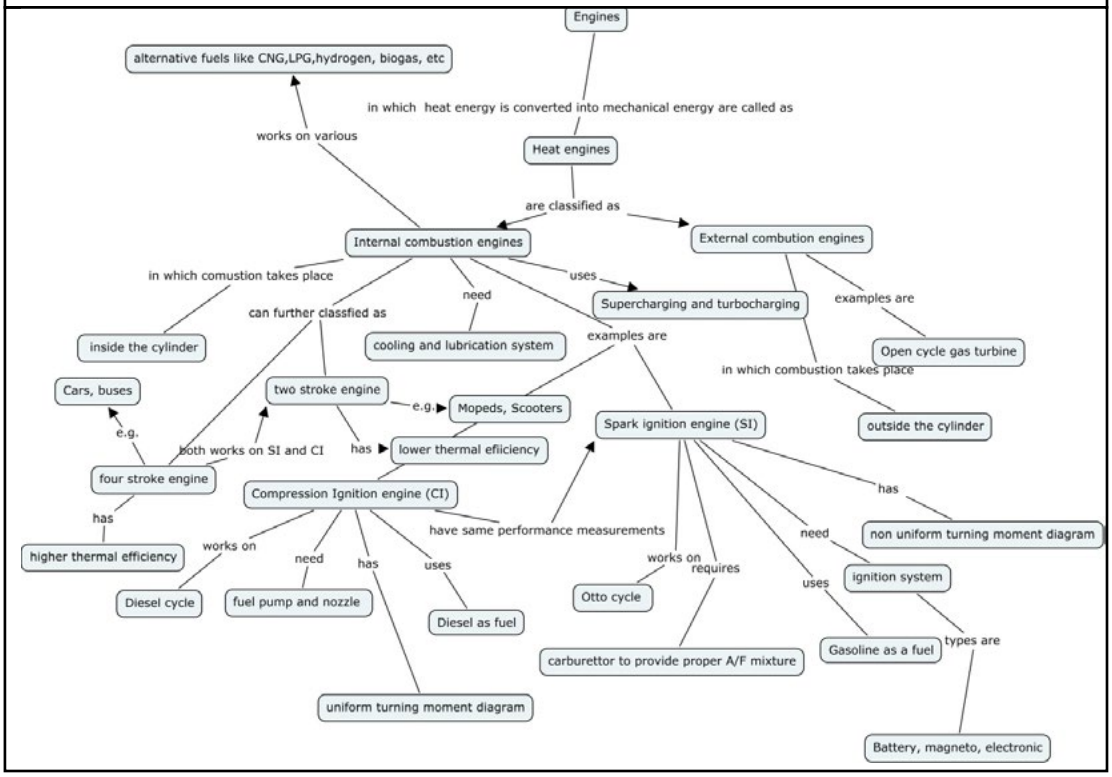
CONCEPT MAP SCORING RUBRIC

The evaluation of the concept maps are typically carried out by comparing them to an expert map (see figure 1, shown towards the end of paper) in either quantitative or qualitative forms.

Various techniques of concept mapping scoring systems can be found in the literature. Originally, Novak and Gowin have proposed basic scoring criteria to evaluate concept maps. While this method is limited to hierarchical maps, this procedure is generally accepted as the most comprehensive scoring method (Ruiz-Primo & Shavelson 1996) and has been reported to work quite well as long as the task of making concept map is well structured and is of a 'closed format' (i.e. the

FIGURE 1
A WELL DEVELOPED CONCEPT MAP FOR THE INTRODUCTION TO THE INTERNAL COMBUSTION ENGINE (IICE)



map structure training and the concepts are provided by the teacher).

There are other quantitative scoring techniques available in the literature i.e. making counts of characteristics; (for example, McClure et al. 1999, Ruiz-Primo & Shavelson 1996) or qualitative methods (i.e. describing the content and quality of the map to some extent; for example, Hoz et al. 199Ø, Lomask et al. 1992, White & Gunstone 1992).

Quantitative approach of scoring concept map is more objective than qualitative and depends upon the skill of the expert evaluator. This report follows quantitative method developed by Novak and Govin. The scoring system is as follows.

Prepositions	1 point per preposition
Hierarchy	5 point per hierarchy
Cross links	1Ø points per cross link
Examples	1 point per example

RESULTS AND DISCUSSION

Concept maps evaluate aspects of learning that the conventional achievement tests measure but they also assist in measuring other aspects of learning which conventional test do not measure (Ruiz-Primo et al. 1997, p.23). There are moderate correlations between scores of concept maps and conventional achievement tests. Students' performance in creation of the concept maps has been found to be significantly correlated with multiple choice tests (Liu & Hinchy 1993; Liu and Hinchey 1996; Rice et al. 1998). The strength of the correlations depends upon three factors: the type of conventional test, the type of concept map format, and the scoring rubric of the concept map (Stroddart, et .al. 1999, pg.1Ø).

The correlations between the scores of concept map and conventional achievement test were found to vary with type of the conventional achievement test (Stroddart, et .al. 1999, pg.1Ø). Higher correlations are found between score of concept map and conventional achievement test which measure applications of knowledge (Wilson 1993). Lower correlations are found between score of concept map and conventional achievement test which measure recall of knowledge (Wilson 1993; Nowak, Gowin and Johansen, 1983).

In our study, the students' scores of the concept map were rated out of 75 and then compared to the knowledge application test (KAT) and knowledge recall test (KRT) separately. The correlation between scores of the concept map and KAT was found to be Ø. 531 as shown in Figure 1[Pearson correlation factor, r= Ø.531, correlation is significant at

FIGURE 2
RELATIONSHIP BETWEEN SCORES OF CONCEPT MAP AND SCORES OF KAT.

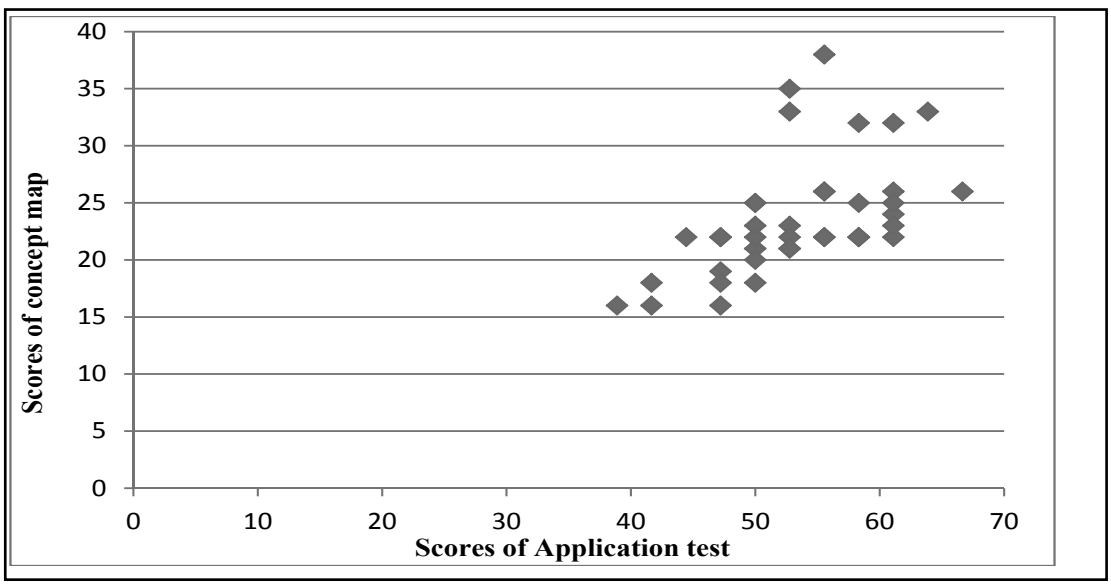
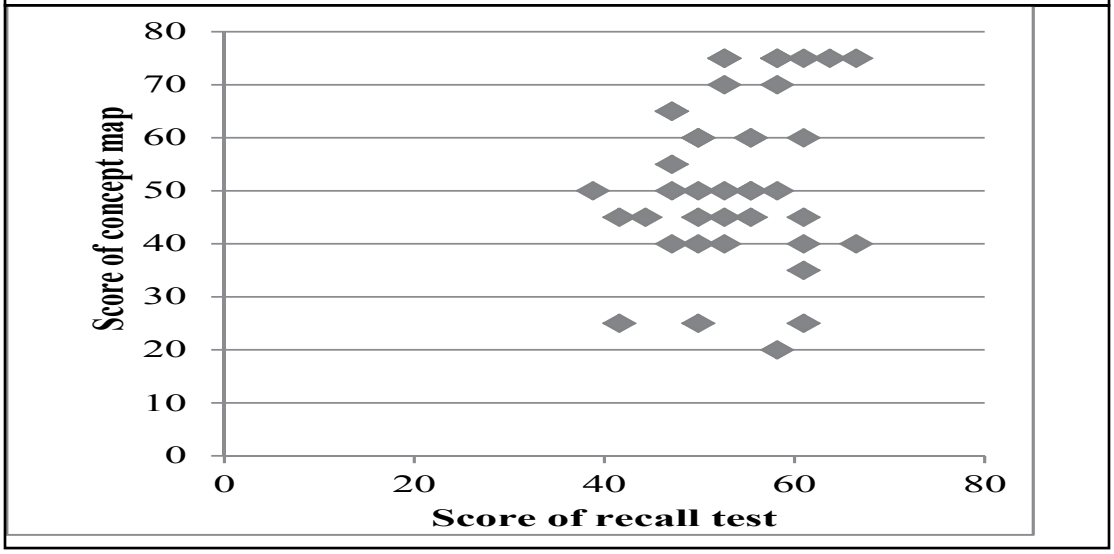


FIGURE 3
RELATIONSHIP BETWEEN SCORES OF CONCEPT MAP AND SCORES OF KRT.



Ø.Ø1 level (2 -tailed)]. This level of correlation is meaningful but moderate as shown in figure 2. The average score of the concept map score is 54.

The correlation between scores of the concept maps and KRT test was found to be Ø.166 (Pearson correlation factor, r = Ø.166).This level of correlation was meaningful but weak as shown in figure 3.

Figure 4 shows the scores of the students in KAT and KRT.

The figure 5 shows the distribution of the scores of prepositions, hierarchy, crosslink and examples in the concept map of the students. 8Ø % of the students are able to write at least 5Ø % of correct prepositions between concepts. Only 3Ø % students are able to connect crosslink between a) four stroke engines and two stroke engines, and b) Spark Ignition (SI) and Compression Ignition (CI) engine. 7Ø % students are able to write hierarchy of concepts like engine, internal combustion engine, external combustion engine, S.I. engine, C.I. engine, two stroke engine, and

FIGURE 4
DISTRIBUTION OF THE SCORES.

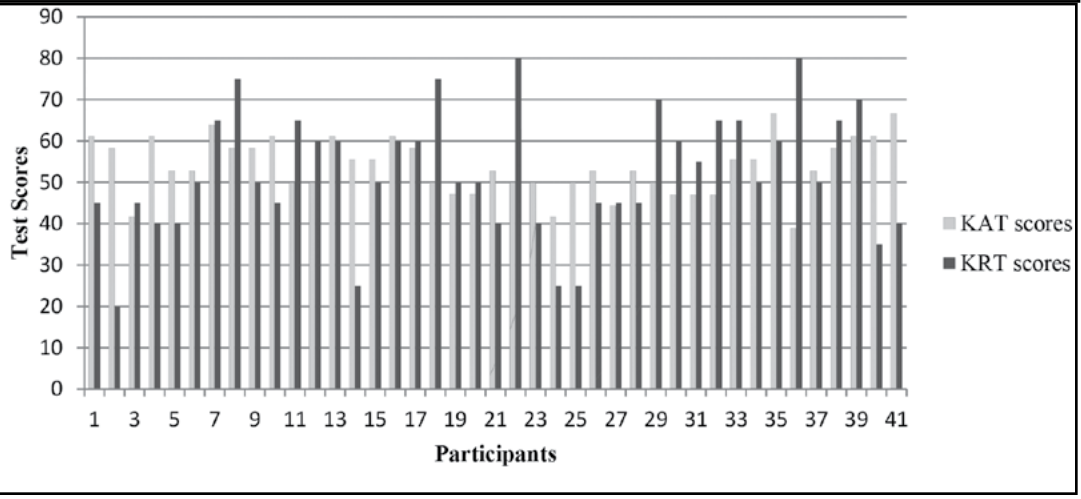
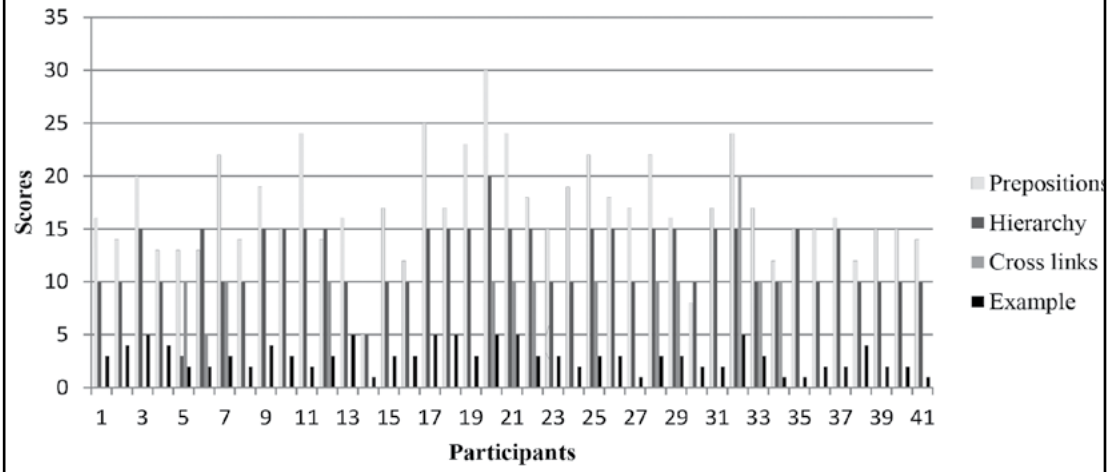


Figure 5
Distribution of the scores of prepositions, hierarchy, crosslink and example in the concept map



four stroke engine. 5Ø % students are able to give correct examples of various engines.

Our findings show that the students included sufficient number of the concepts, but they had difficulties in showing relationship between the concepts.

In order to evaluate the students' attitude towards concept mapping and the use of this tool in internal combustion engine classroom teaching, questionnaires were administered to the students. The students were questioned on several aspects of the concept mapping tool and its use in the classroom, the concept mapping tool itself and finally the impact it had on their learning. The reliability estimate based on the Cronbach Alpha method is Ø.87, which is consistent with reliability estimates of perceptions questionnaires from other such studies which obtained reliability estimates from Ø.5 to Ø.9 [Glenn, et. al. 2ØØ4]. The qualitative data below is representative of the students' responses to these questions (see Table 2). Most of the students were in favour for the use of the concept maps in the classroom.

CONCLUSIONS

In the present study, we found that there is a moderate correlation (r=Ø.531) between the students' performance in the conventional achievement test which measures application of knowledge (KAT) and their concept map scores (CMS). Also, there is week correlation (r=Ø.166) between the students' performance in the conventional achievement test which measures recalling of knowledge (KRT) and their CMS. Literature shows that there is either moderate or high correlation between KAT and CMS (Stroddart, et. al. 1999, pg.1Ø). Literature also shows that there is weak correlation between KRT and CMS. Our results are consistent with most of the literature results. It was also found that the students seem to enjoy the creation of the concept maps. The students feel that the tool of concept map has several benefits to their learning of the internal combustion engine.

Our findings indicate that even though the students performed better in achievement test than in the creation of concept maps; they had difficulties in establishing the relationship between the concepts of two stroke engine and four stroke engines, and between S.I and C.I. engine.

The present study suggests that concept mapping can be used to identify the major gaps in students' knowledge, to help a teacher to identify central key concepts to target in their teaching. CMS can also be used as an assessment tool to determine the extent and quality of new connections that the students are

Table 2
Student's feedback on different aspects of concept mapping (using the Likert scale)

Sr. no	Item	% Agree or Strongly Agree
1	Concept maps helped me to learn and identify key concepts of the topic	75.6
2	Concept mapping helped me to connect the various concepts with each other	80.48
3	This activity of concept mapping helped me in problem solving capacity	68.29
4	Concept maps helped me to rectify the misconceptions about the topic	58.53
5	Concept mapping activity is useful in understanding in memorizing/ recalling/visualizing the various key concepts	65.85
6	Concept mapping is useful activity for study and revision	87.8
7	Concept maps help in arranging more logical flow of concepts	78.04
8	Concept mapping helped me to see 'Big picture' of the topic	73.17
9	Concept mapping activity is useful to me and to apply to other subjects in near future	63.41
10	I have enjoyed concept mapping activity	82.92

able to make after the instructions. Concept maps measure aspects of learning which conventional tests do not measure.

The findings of this study have several implications for mechanical engineering curriculum. There are several other subjects in mechanical engineering curriculum which stress the importance of concepts, connections between concepts and hierarchy of concepts. Concept mapping as a teaching learning strategy in these subjects can help to assist in meaningful learning.

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Appendix 1
Sample questions of KRT and KAT.

Knowledge Recall Test (KRT)	Knowledge Application Test (KAT)
1) Which of the following engines has maximum thermal efficiency? a) Two stroke C.I. engine b) Four stroke C.I. engine c) Two stroke S.I. engine d) Four stroke S.I. engine	1) An Engine with 60% mechanical efficiency develops a brake power of 20 kW. Its frictional power in kW is a) 14 b) 20 c) 13.33 d) 25
2) What is the range of compression ratio for S.I. engine? a) 8-12 b) 12-14 c) 14-18 d) 18-22	2) A 4-stroke, 4 cylinder S.I. engine has a bore of 60 mm and stroke of 80 mm. The compression ratio is 6. Its clearance volume in cc is a) 55.24 b) 45.24 c) 65.24 d) 21
3) Which of the following can be used as an alternative fuel in S.I. engine? a) H_2 b) O_2 c) N_2 d) CH_4	3) A diesel engine has a brake thermal efficiency of 28%. If C.V. is 42,000 kJ/kg, its brake specific consumption in kg/kWh is a) 0.306 b) 0.506 c) 0.206 d) 0.606
4) Thermal efficiency is the ratio of a) B.P. /I.P. b) I.P/B.P c) F.P/B.P d) F.P. /I.P.	4) S.I. engines are a) Quantity governed b) Quality governed c) Both Quantity and quality governed d) None of the other three
5) Which of the following engine requires spark plug? a) S.I. b) C.I. c) both d) none	5) In diesel engine, the compression ratio in comparison to expansion ratio is a) One b) Less than one c) More than one d) Variable
6) Working of a four stroke engine requires a) Three strokes b) Six strokes c) Four strokes d) Two strokes	6) If the temperature of air supplied to I.C. engine increases, its efficiency a) Increases b) Decreases c) Does not change d) May increase or decrease depending on other factors
7) Ignition system is required in following engine a) S.I. b) C.I. c) both d) none	7) The air-standard Diesel cycle is less efficient than the Otto cycle for the a) Same compression ratio and heat addition b) Same pressure and heat addition c) Same rpm and cylinder dimensions d) Same pressure and compression ratio

Fusion Teaching: Utilizing Course Management Technology to Deliver an Effective Multimodal Pedagogy

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ABSTRACT

Fusion teaching merges several pedagogies into a coherent whole. Course management technology allows for the digitization and delivery of pedagogies in an effective and exciting manner. Online course management options more easily enable outcome assessment and monitoring for continuous improvement.

INTRODUCTION

Fusion teaching is the practice of unifying several pedagogies. Course management technology (CMT) is an effective mechanism to merge several pedagogies within one course. Fusion teaching will result in higher levels of student engagement, satisfaction and learning.

With an increase in class size and diversity, developing an effective teaching strategy is essential since student age, gender, ethnicity, personality, and learning style vary within the same class. Enabling fusion teaching with course management technology will allow instructors to implement a variety of pedagogies that directly involve students in learning.

Factors that could nudge instructors toward a fusion teaching approach include research findings from higher education literature on teaching and learning, the variety of choices among instructional pedagogies, and course management technology platform alternatives. Student achievement and student satisfaction data provides support for the fusion teaching approach. The approach is definitely beneficial, but not without challenges. Several next step suggestions will be made for instructors seeking to implement fusion teaching in a classroom setting while attempting to avoid both real and perceptive obstacles.

TEACHING AND LEARNING LITERATURE

Course management technology can blend teaching and learning theory in a manner that augments a multiplicity of outcomes. Student learning and satisfaction are both desirable outcomes of collegiate coursework. Student learning is an obvious desirable outcome, but satisfaction is particularly important to tuition dependent private institutions.

Teaching and learning literature identifies several learning models. Course management technology is able to incorporate aspects of at least four popular models: Blooms Taxonomy of Educational Objectives, Finks Taxonomy of Significant Learning, Kolb's Experiential Learning Styles, and Pine and Gilmore's Experience Realm model.

Academic learning models focus on how students learn in an academic setting. Bloom's Taxonomy (Bloom, Englehart, Furst, Hill, & Krathwohol, 1956), one of the earlier models, was a criticism of traditional education that primarily focused on lower-order processes. Bloom's Taxonomy acknowledges the lower-order processes such as knowledge, comprehension and application; but the model includes the higher-order processes of analysis, synthesis, and evaluation.

Due to limitations in the original Bloom's Taxonomy, Fink (2003) came up with a successor known as the Taxonomy of Significant Learning. In modern society, certain skills not easily reconciled with Bloom's Taxonomy are now needed. These skills include leadership, communication, ethics, and adaptability. Fink discarded the hierarchy of Bloom and used the following learning domains: learning how to learn, foundational knowledge, application, integration, human dimension, and caring. The key to the model, though, is that significant learning occurs when more than one domain is synergistic with another domain.

A competing learning model is Kolb's Experiential Learning Model (Kolb & Fry, 1975). The model is composed of four elements; concrete experience, observation and reflection of that experience, formation of abstract concepts, and testing of these new concepts. Related to the model are learning characteristics such as learning is a continuous process grounded in experience. Further, learning is by its very nature full of tension. And finally, learning is the result of the transaction between social knowledge and personal knowledge.

A different take on experience comes from the work from Pine and Gilmore (1999). Their work is not an academic learning model per se but it is relevant to the classroom, when the topic of student satisfaction is examined. Pine and Gilmore theorize that customers will pay well for an amazing experience or an experience that is transformative. Except for examples found in movie clips or YouTube clips, most lecture experiences do not rise to this level, but an innovative course delivered in an unexpected manner can deliver the value added that many students desire.

Higher education should be more than providing a service. Pine and Gilmore suggest service enterprises should re-contextualize offerings to create experiences for purchasers. The Experience Realms model asserts that service providers can structure purchaser interactions from passive to active involvement while connection with the service can range from immersion to absorption. Memorable experiences occur when the service is able to convey a balance of these ranges within a service offering. For example, college classes may be more memorable when the degree to which involvement or absorption vary from one assignment to another.

The learning models give a framework and rationale for attempting to fuse a variety of digital pedagogies into one course with an online technology platform (Jung, 2011). Using a digital environment to convey the lessons of the learning models has its supporters (Scardamalia, Bereiter, McLean, Swallow, & Woodruff, 1989; Schneiderman, Borkowski, Alavi, & Norman, 1998). Fusion teaching is an architectural approach to course design that is capable of encompassing elements of each of these learning models in order to positively influence both cognitive and affective domains (Tsai, 2011). Fusion teaching will allow students to focus on teaching and learning modes that connect to personal preferences, an approach that is made possible by course management technology (Schneckenberg, Ehlers, & Adelsberger, 2011).

COURSE MANAGEMENT TECHNOLOGY

Course management technology has become an increasingly important mechanism to deliver coursework in higher education (West, Waddoups, & Graham, 2007). We believe that course management systems have been underutilized (DeNeui & Dodge, 2006). Certainly, many instructors use CMT, but the majority may not use it effectively, consistently, intensively, or taking full advantage of available features (Beatty & Ulasewicz, 2006). We are able to incorporate a greater variety of pedagogical modes while releasing in-class time to active learning activities by moving more assignments to an asynchronous environment. The use of multiple pedagogies online may exceed what is pedagogically possible in the classroom alone and may go beyond what is typically familiar to some instructors.

Today, most CMT software includes tools that allow for course content organization, presentation, communication, assessment and grading. Further tools, such as live chat, discussion forums, and collaboration functions permit the

instructor to manage class materials and activities. We believe that CMT packages have been underutilized, despite the availability of a variety of CMT vendors.

There are several CMT vendors in the market but the leading providers are Blackboard, Moodle, Desire2Learn, and Sakai. In the 21st National Survey of Computing and Information Technology in American Higher Education (Green, 2010), the report highlighted a shift away from the market leader of Blackboard. The survey results showed that Blackboard's share of the market had fallen from 71 percent in 2006 to 57 percent in 2010. Thus, the other vendors had all increased their market share in this time frame. Moodle had gone from 4 percent to 16 percent. Desire2Learn had risen from 2 percent to 10 percent, and Sakai had gone from 3 percent to 5 percent. Thus, the leading competitors to Blackboard had gone from 9 percent market share in 2006 to 31 market share by 2010.

These four popular packages tend to offer a similar gamut of tools and features, the pros and cons of using a course management system will be discussed in a general sense as opposed to doing some sort of comparison matrix. The primary pros of using course management technology are the following - instant feedback to students, educator time savings, and a variety of learning tools. The cons of using a course management system are restrictions on academic sharing, certain costs, and lock-in choice. Restrictions on academic sharing refer to the situation that students often cannot access the materials once the semester ends. Costs include total cost to operate, so a free package like Moodle will still have associated infrastructure and support costs. Lock-in choice means that the competing packages have different menus and navigation tools. Educators and students can be reluctant to migrate to competing packages because they are so familiar with the existing package.

Course management technology will transform student learning by enabling of a variety of pedagogical modes. For example, if some portion of routine lecture-presentation-explanation of textbook materials is made available online, then devoting more in-class time to some interactive or high-impact learning activities that correlate with greater student satisfaction is possible.

Consequently, the role of a faculty member changes from a source of information to a coach in the learning process. Providing students with the auto grading of online assignments along with instant feedback on mistakes will reduce the amount of faculty time dedicated to the sheer clerical nature of grading. Instructors are then able to give both individuals and small groups the attention they want at far less cost while helping students to focus on particular areas of individual improvement.

INSTRUCTIONAL PEDAGOGIES

Fusion teaching is a pedagogical approach which is able to deliver several instructional techniques, assignment types and assessment mechanisms through a common online digital portal. The portal provides a gateway to a variety of technologically infused pedagogies. For example, instructors and students can choose among audio or video clips, static or animated graphics, and fixed or algorithmically regenerative calculations.

A course management technology platform will allow instructors to offer students an assortment of assignments that will improve both learning and satisfaction. The more diverse the assortment, the more likely a student will be able to connect with her learning style, reach higher levels of cognitive ability, bring about engagement at a more emotional level and experience significant learning. Students consistently score electronic classroom experiences higher on course evaluation questionnaires for interest, motivation and learning in comparison to a lower score for traditional classroom experiences that may largely embody a lecture approach (Schneiderman, et al., 1998).

A wide range of digital assignments are possible, such as narrated and non-narrated PowerPoint slides, video cases, discussion boards, hyperlinked texts, audio and video lectures, pre and post testing, short answer questions, essay questions, objective testing, breaking news, surveys of student opinion, RSS feeds, Web links to resources as well as current events, movie and music clips, synchronous class meetings, and interactive graphs and equations. Additionally, social media such as Facebook and Twitter could also be imbedded into the online course design. The range of possible assignments could be required or may be available as options to students wishing to choose activity types that best match their learning interests.

A further variety of assignments could be incorporated into the course grade or could be designed as a self-paced study aid. Hints, explanations and answers to assignment questions may be revealed or hidden. Flash cards can be embedded into the CMT. Nearly all major providers of study materials for national professional exams (e.g. CPA exam, CFP exam, etc.) sell flash cards to exam candidates. A student could assess her own progress in the course by reviewing elements of the grade book, performance on assignments or answers to particular questions. By digitally delivering a variety of instructional pedagogies through course management technology, a greater likelihood may exist to achieve sought after educational objectives that emerge from the literature of teaching and learning.

SUPPORTING EVIDENCE

A fusion teaching approach utilizing course management technology finds evidentiary support for beneficial cognitive and affective classroom outcomes. We seek to assess both student satisfaction and knowledge in college level Principles of Macroeconomics and Principles of Microeconomics courses. For student satisfaction we rely on a questionnaire along with unstructured interviews and for student knowledge we rely on topic examinations within a course as well as the administration of a national exit exam.

Our qualitative assessment suggests that students in fusion taught courses regularly spend more time studying, are engaged with a variety of learning activities, are able to comprehend the material more thoroughly, connect with pedagogies that are a best match for the learning style of the student, and are actively involved in self-driven learning assignments that assist in mentally anchoring material rather than passively sitting and listening to material that may then be more easily forgotten. Moreover, the level of communication increases not only with the instructor but also among the students.

Our quantitative assessment reveals that students enrolled in fusion taught classes spend on average 6 hours a week with the required online course components in a typical three semester hour class that also meets two and a half hours a week for lecture-presentation. The total number of questions that can be used to assess student performance has risen from 300 in a paper and pencil in-class testing environment to approximately 2,100 in a digital environment. Student comprehension has increases across 33 separate topic areas designated as essential to understanding economic principles. Table 1 identifies some of the topic areas with the corresponding percent of students answering these questions correctly.

TABLE 1

Concept	Percent Correct
Marginal Costs and Benefits	91
Elasticity	85
Perfect Competition	85
Aggregate Supply and Demand	84
Gains from Trade and Economic Welfare	84
Scarcity, Tradeoffs and Opportunity Costs	84
National Income, Productivity and Growth	82
Supply, Demand and Market Equilibrium	82
Costs of Production	81
International Trade and Finance	81
Oligopoly	80
Money, Banking, Monetary and Fiscal Policy	79
Monopolistic Competition	77
Monopoly	77
Cost of Living	75

Table 1 allows for closing the loop in a continuous improvement process. Pooling class level aggregate data provides an understanding as to what topics are well understood and those that need more attention from instructors. Individual instructors as well as departments or coordinators of required multi-section courses could develop and implement a plan to improve student performance on a certain topic. Assessing the implementation results is then possible to determine if the objective has been met.

Using an iterative process of establishing learning objectives, measuring performance, identifying the gap between actual and benchmark student understanding, developing and implementing an improvement plan and then assessing the effectiveness of the plan, our performance on a nationally standardized exit exam boosted student

knowledge from the 45th percentile nationally to the 85th percentile within five years. Furthermore, scores on a course-level comprehensive final exam that covers all topics taught during a 15 week course results in 80 percent of test grades ranging from 85 to 94 percent correct.

Coincident with this rise in performance is a rise in student satisfaction. On average, students rank their satisfaction with a fusion taught course nearly 20 percent higher than a comparable non-fusion taught course. Echoing this satisfaction are written student comments on a course evaluation such as: I liked using [the CMT], it was very helpful!; I loved the online testing, I think this helped me learn the material better; I loved the fact that we had a pre and post-test with each chapter; I like the fact that our work is online; the [CMT] was very helpful, helped me learn.

BENEFITS AND CHALLENGES AND INSTRUCTOR IMPLEMENTATION

Our experience suggests that fusion teaching leads to an increase in student learning, satisfaction, engagement, communication and interest in taking additional upper-division courses in economics. Course management technology has provided an impetus for course innovation, faculty collaboration, more data gathering for assessment purposes, documentation for assurance of learning standards, and an efficient curriculum evaluation process that leads to continuous improvement.

A fusion teaching approach is not without challenges. Some forethought and planning could help to: avoid slow connection speeds off campus, provide personal computer software updates, offer a 24/7 CMT help line for those needing assistance, prevent user unfamiliarity with a CMT environment, keep users abreast of CMT updates and options, overcome difficulties in downloading materials, limit the sharing of online work among students, reduce the incidence of academic dishonesty, and help to minimize the initial time commitment for faculty contemplating a more intensive use of CMT and to provide ongoing support for updating existing courses.

Faculty support for intensive CMT use should not be underestimated. Technical difficulties can reflect poorly on the instructor and make dodging experimentation with CMT a safer option for the instructor. Student support is parallel to this concern in that students encountering a poor experience will often approach the instructor for a solution.

Implementation of a fusion teaching approach requires a time commitment to design a course with CMT. The process of regeneration is continuous and incremental after the initial course set-up. Digital courses can get better with age, but do require some pruning of previously posted materials while simultaneously cultivating new materials. The iterative course assessment process previously mentioned provides the feedback to determine which pedagogical materials to keep or discard.

In implementing a fusion taught class we suggest that students be provided with a CMT orientation session so they can become familiar with the features of the system that will be utilized in the course. Inevitably, students will have questions or unanticipated problems with CMT. Consequently, the availability of a assistance whether by email, instant messaging or phone should be anticipated, provided and conveyed to users on how to access the assistance.

A perpetual concern is how to reduce the incidence of academic dishonesty among students. For example, using algorithmically regenerated questions, varying the response order of questions, setting assignment time limits on assignment availability, using a subset of questions for an individual evaluation where the subset varies from student to student, monitoring the time spent per assignment, tracking student progress and establishing submission deadlines should mitigate academic dishonesty.

Additionally, some course management systems provide for browser locks so that students cannot access any other materials on a computer or on the Web while engaging an online assignment. Furthermore, the use of an in-class comprehensive final exam that is a significant component of the course grade should deter dishonesty if the path to get the best grade requires a diligent, ongoing, honest effort with the online materials throughout the entire semester.

Designing courses to encourage a diligent semester long effort is possible when considering the structure of assignments. Materials could be assigned for each chapter or topic. A pre and post-test could be available as well as chapter quizzes and exams that cover a range of pedagogies such

as calculation questions, flashcards, drop and drag graphic questions, and audio or video clips. Some of the assignments may be due prior to an in-class lecture-presentation-application while others could be due after the in-class meeting. By specifying due dates and incorporating some attempts or scores into an online grade book, the CMT will encourage students to keep pace with the class.

SUMMARY

Fusion Teaching transforms the way learning occurs by allowing students to connect with pedagogies that are helpful to their understanding. The evidence reveals that when students are actively involved in learning activities, they learn more and remember it longer than when they are passively sitting and listening. Alternatively, the instructor may deal less with routine inquiries becoming more of a supervisor of the learning process rather than a source of information. Furthermore, the instructor may devote more class time to in-class activities and applications in order to capture student interest.

In the words of Ben Franklin, "Tell me and I forget. Teach me and I remember. Involve me and I learn." Our experience suggests that the mediation of fusion teaching with course management technology will engage students, increase satisfaction and improve learning while enhancing instructional effectiveness.

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An Investigation into Good Teaching Traits

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ABSTRACT

Undergraduate and graduate students at an AACSB International accredited Midwestern business school were surveyed about their perceptions of traits that might contribute to good teaching. Thirty-five traits were presented for evaluation. Students scored each trait and identified the items they perceived as the five most important and the five least important. Means tests were used to order the traits based on student scores. Rank order correlation was used to evaluate compiled lists of most important and least important traits. Instructor expertise in the content/subject matter, strong communication skills, and being prepared for class were identified as the traits perceived by students as most important to good teaching. Students in general believe that an instructor's rank or title, the instructor's manner of dress, and the instructor's research record contribute the least to teaching effectiveness.

INTRODUCTION

The Merriam-Webster Dictionary provides many definitions for the word "teach" including the following: "to cause to know something," "to accustom to some action or attitude," or "to impart the knowledge of." While the meaning of the word "teach" is certainly well understood, pinpointing the exact mix of characteristics or traits that make for "good teaching" is another matter. Experienced teachers know that "teaching" is a constantly evolving process, and though it may be relatively easy to identify "good teachers," describing exactly what makes for "good teaching" is no easy task. In fact, as Kneipp, Kelly, Biscoe and Richard (2010) point out, one of the continuous and long standing challenges in higher education is the development of an educational environment that is conducive to maximum student learning. Part of the challenge in education at all levels comes from the fact that individual students have different optimal learning environments, but classes are not offered on the basis of student learning preferences. Therefore, part of the difficulty in assuring learning is reaching students with many different learning styles who share the same classroom. Most, if not all, teachers first and foremost want their students to excel and master the material. This goal is compounded at the college level since students have the opportunity to evaluate teaching effectiveness using various types of student opinion surveys. Through this evaluation process which generally takes place at the conclusion of most college courses, student opinions of a faculty member's teaching ability have the potential to impact a faculty member's career trajectory. Therefore,

faculty members have many reasons to take an interest in student opinions of "good teaching."

This paper summarizes the results of a study undertaken by the authors which consisted of a survey administered to approximately 550 students in select classes in fall 2011 at a mid-sized AACSB International accredited Midwestern university business school. The purposes of the study were to collect data on the teacher traits that students believe contribute to good teaching, and to facilitate continued discussion on this rather elusive topic that has the potential to significantly impact the careers of those faculty members who are not yet tenured or may not have the opportunity to be granted tenure. In recent years, there has been increased emphasis place on monitoring the quality of university teaching as attention has been focused on learning outcomes for quality assurance purposes (Marsh, 2007). As Chingos and Peterson (2011) explain, it is conventional wisdom that teachers at all levels in the education system vary substantially in terms of their effectiveness or ability to lift students to classroom achievement as measured by standardized test scores. The cause of the variability, however, is very difficult to identify. The goal of this paper is to provide an additional perspective, specifically the student perspective, on the topic of teacher effectiveness.

PRIOR RESEARCH

Studying teacher effectiveness is certainly not new and neither is the controversy surrounding student opinion surveys as a tool for measuring teaching effectiveness. Guthrie (1953) described the student survey process which had been in place at the University of Washington since 1925. The process was not mandatory; faculty members could choose to have their classes surveyed. However, a questionnaire put out by the local chapter of the American Association of University Professors at the University of Washington in 1944 found that 69% of the faculty approved of the practice. By the early 1950's, the teaching effectiveness survey had been administered thousands of times, and Guthrie concluded, "students agree quite well on what they believe are important features of good teaching and their judgments provide a valuable measure of teaching effectiveness." The five traits that the students mentioned most often were the following:

1. Clear and understandable in explanations
2. Active, personal interest in progress of the class
3. Friendly and sympathetic in manner
4. Interest and enthusiasm in subject
5. Gets students interested in the subject

While students have changed over time and teaching methods have evolved, the formal study of what makes a college teacher effective is ongoing. Comparing the list above from the 1953 Guthrie article to a similar list published fifty years later in 2003 suggests that student opinions regarding teaching effectiveness may not have changed dramatically. Witcher et al (2003) suggest that students believe that effective college teachers possess some or all of the following nine characteristics, listed in order of importance:

1. Student-centered
2. Knowledgeable about the subject matter
3. Professional
4. Enthusiastic about teaching
5. Effective at communication
6. Accessible
7. Competent at instruction
8. Fair and respectful
9. Provider of adequate performance feedback

There are many consistencies between the two lists including enthusiasm, effective and clear communication, and friendly and student centered. The lists include characteristics that might be considered personality traits (enthusiastic, friendly, and sympathetic) as well as skills (knowledge of the subject matter and clear explanations) and teaching methods (prompt feedback and fairness). The second more extensive list also includes the knowledge of the teacher and the ability of the teacher to be fair, respectful and to provide adequate feedback. Indeed, many contemporary authors, such as Helterbran (2008) and Barr and Tagg (1995), argue that there has been a paradigm shift between providing instruction and producing learning. Spe-

cifically, many believe that the primary teaching role has changed over time from the teacher as one who imparts knowledge to the teacher as one who facilitates learning. In a model where the professor primarily facilitates learning, feedback is of utmost importance, and students expect prompt, formative feedback that can help them to improve future work (Polachek, 2006). Moore (2006) provides statistical support that fairness and respect are key teaching effectiveness. Administering fair examinations and treating students with respect were significant variables positively correlated with a student's assessment of the teacher's overall effectiveness while actual or anticipated grades given by the professor were not related to a student's assessment of the teacher's overall effectiveness.

Providing clear and understandable explanations ranked at the top of the 1953 list from the University of Washington and also ranks high on the latter list. As McIntyre and Battle (1998) point out, content is certainly important to effective teaching, but unless the delivery of the content is effective, the content cannot be "absorbed" by the students. Therefore, communication is really at the center of a quality classroom.

Personality traits of individual faculty members cannot be overlooked with respect to their potential impact on the student perceptions of teaching effectiveness. Kneipp, Kelly, Biscoe and Richard (2010) examined the effects of teacher personality characteristics on student perceptions. They assessed five personality traits (openness, conscientiousness, extraversion, agreeableness, and neuroticism) using the Big Five Personality Test. The results indicated that agreeableness was the only factor that significantly correlated with student ratings of instructional quality. Agreeableness as a personality characteristic is described as being positive and accepting of others. According to Costa and McRae (2002), it denotes the traits of trustworthiness, helpfulness, and caring.

The characteristics that have been identified as potential contributors to effective teaching that fall into the skills and teaching methods categories are characteristics that can change over time for a particular faculty member. Marsh (2007) examined the long-term stability of students' evaluations of teaching effectiveness (SETs) using an applied a multiple-level growth modeling approach. He studied a diverse cohort of 195 teachers who were evaluated continuously over 13 years and found little evidence that teachers became either more or less effective with added experience. While there were substantial individual differences between teachers in terms of their teaching effectiveness, their teaching abilities remain relatively consistent over time.

This research suggests that age or experience may not predict teaching effectiveness. Similarly, Hoffmann and Oreopoulos (2009) found that differences in commonly observed instructor traits, such as rank, faculty status, and salary, have virtually no effect on student outcomes. While student outcomes are not necessarily the same as student opinions of teacher effectiveness, this does suggest that these variables might be interesting to study from a teaching effectiveness point of view as well.

Similar to rank, faculty status (e.g., graduate faculty), and salary, a faculty member's choice of attire does not fall into the category of a personality trait, skill, or teaching method. However, a faculty member's choice of attire may impact a student's perception of the faculty member's professionalism, approachability or knowledge. Lavin, Carr, and Davies (2009) found that male and female students had a higher opinion of a female instructor when she was depicted in professional dress versus casual or business casual attire. However, professional dress was viewed as somewhat of a negative indication of the instructor's willingness to answer questions and listen to student opinions, especially with respect to the female students. Faculty attire adds an interesting aspect to the study of teaching effectiveness because while many of the traits of good teaching that have been discussed may be difficult for an individual faculty member to change or impact, especially over the short term, one's attire can certainly be modified even in the short term. Therefore, if faculty attire has an impact on teaching effectiveness, faculty members might consider that as a potential avenue for change.

There is a long list of characteristics that have been identified through many years of research on the topic of teaching effectiveness conducted by researchers across various fields of study. The common theme among this work goes back to the idea that good teaching does matter to students, and students recognize good teachers when they have them. However, there is no "universal" definition of good teaching. McIntyre (1998) studied four trait categories of "good" teachers - person-

ality traits, respectful treatment of students, behavior management practices, and instructional skills. He found that African-American students believe that the instructor's personality traits and respectful treatment of students are significantly more important than their white student peers. Specifically, African-American students viewed humorous, entertaining, relaxed, and caring teachers as being more desirable than did their white peers. He also found that across the board, teacher characteristics and personality traits are viewed with greater importance by female students than by male students. These findings support the hypothesis that different students define "good" teaching differently. Therefore, the goal of this work is to add another perspective to the discussion of what makes for good teaching.

PRESENT STUDY

Students from a cross-section of undergraduate and graduate business face-to-face classes at a mid-sized AACSB International accredited Midwestern university business school were given the opportunity to participate in a research study by completing a brief, two page questionnaire, the purpose of which was to assess student perceptions of the characteristics and traits that contribute to good teaching. The survey instrument consisted of a list of 35 instructor traits or characteristics and asked each survey respondent to indicate the extent to which each contributes, if at all, to good teaching. These traits were selected due to their inclusion in prior studies as well as the experience of the authors. The student could choose from the following options: No Contribution, Minimal Contribution, Moderate Contribution, and Major Contribution.

In addition, respondents were also asked a number of demographic questions, including whether they were graduate or undergraduate students, their program of study or major, and their year in school (e.g., freshman, sophomore, etc.) as well as their grade point average, gender, age, employment status and personality type.

In all, the survey was administered in fall 2011 in seven different face-to-face classes which included those at the 100 (first year), 200 (second year), 300 (junior level), 400 (senior level) and graduate (700) level. Courses selected included a general survey of business course, principles of economics, three undergraduate core business courses (i.e., classes required of all business majors), and one graduate core course from the MBA program as well as the MPA (Master of Professional Accountancy) program. The courses were selected in order to achieve representation from a variety of students in the business school and in order to minimize the potential for the same student to receive the survey twice. Students were asked to complete the survey only one time. Due to the fact that there were multiple sections of several of the courses offered on the university's main campus and in a satellite location, 19 sections in total were studied. Faculty members who participated were asked to devote class time to allow students to complete the survey due to the predicted positive impact on the response rate.

In total, 381 respondents answered all substantive and related demographic questions, and these surveys serve as the basis for the analysis that is reported here. Demographic characteristics of the respondents are as follows:

- Eleven percent were graduate students, while 89% were undergraduate students;
- With respect to the undergraduate students, 27% of the respondents were accounting majors, 21% were management/human resource majors, 11% were marketing majors, 10% were finance majors, 8% were health service administration majors, and 4% were economics majors. In addition, 11% were nonbusiness majors, while 8% had not chosen a major;
- Also with respect to undergraduate students, 29% were freshman, 28% were sophomores, 28% were juniors, and 15% were seniors;
- Thirty-nine percent of the respondents reported having grade point averages between 3.51 and 4.0, 35% reported having grade point averages from 3.01 to 3.5, 21% had grade point averages of 2.51 to 3.0, and 5% indicated they had a grade point average between 2.01 and 2.50;
- Forty-one percent of the respondent were female, while 59% were male;
- Eighteen percent of the participants reported being aged 18 or younger, 55% were aged 19 to 21, 15% were aged 22 to 24, and 10% were over 24;

- Eighty-four percent reported they were traditional students, while 16% considered themselves nontraditional;
- Forty-four percent classified themselves as being competitive by nature, while 56% responded that they were easy-going; and
- Nine percent were employed full-time, 53% employed part-time, and 38% were not presently employed.

RESULTS

The survey asked respondents to indicate the extent to which thirty-five instructor traits or characteristics contributed to good teaching. Respondents were provided a scale which included (1) "No Contribution," (2) "Minimal Contribution," (3) "Moderate Contribution," and (4) "Major Contribution." Responses for each trait were averaged and standard deviations were calculated. Table 1-A reflects the 18 traits which reflected the highest average contribution scores. Table 1-B reflects the 18 traits which reflected the lowest average contribution scores. A means test was conducted between traits. Those traits which exhibited no statistically significant differences [p = Ø.Ø5] between the respective mean scores are shown in the two tables.

Respondents rated content expertise as the trait which contributed most to good teaching. Communication skills, preparedness, approachability, fairness, and respect [for students] were clustered together (averages ranging from 3.6168 to

Table 1-A
Groupings of Ranked Items for
Which No Statistically Significant [p = Ø.Ø5] Differences Were Found
Traits are Ranked from Greatest Perceived Contribution to
Least Perceived Contribution to Good Teaching

Traits	Average		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Content/subject matter expertise	3.7087	1	1																	
Strong communication skills	3.6168	2	.	2																
Class preparedness	3.6063	3	.	3	3															
Approachability	3.5906	4	.	4	4	4														
Fair	3.5801	5	.	5	5	5	5													
Respectful	3.5486	6	.	6	6	6	6	6												
Receptive to questions	3.5092	7	.	.	.	7	7	7	7											
Timely feedback	3.4829	8	.	.	.	.	.	8	8	8										
Responsive	3.4672	9	.	.	.	.	.	9	9	9	9									
Caring attitude	3.4593	10	.	.	.	.	.	10	10	10	10	10								
Organized presentation	3.4567	11	.	.	.	.	.	.	11	11	11	11	11							
Clear presentations	3.4514	12	.	.	.	.	.	.	12	12	12	12	12	12						
Concise explanations	3.4331	13	.	.	.	.	.	.	13	13	13	13	13	13	13					
Engaging	3.4121	14	.	.	.	.	.	.	.	14	14	14	14	14	14	14				
Enthusiastic	3.3858	15	.	.	.	.	.	.	.	.	15	15	15	15	15	15	15			
Encouraging	3.3517	16	.	.	.	.	.	.	.	.	.	.	.	.	16	16	16	16		
Dynamic presenter	3.3255	17	.	.	.	.	.	.	.	.	.	.	.	.	.	17	17	17	17	
Work (industry) experience	3.3228	18	.	.	.	.	.	.	.	.	.	.	.	.	.	18	18	18	18	18
Sense of Humor	3.3228	19	.	.	.	.	.	.	.	.	.	.	.	.	.	.	19	19	19	19
Structured	3.3018	20	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	20	20	20
Professionalism	3.2651	21	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	21	21	21
Experienced lecturer	3.2598	22	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	22	22	22

Table 1-B
Groupings of Ranked Items for
Which No Statistically Significant [p = 0.05] Differences Were Found
Traits are Ranked from Greatest Perceived Contribution to Least Perceived Contribution to Good Teaching

Traits	Average		18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
Work (industry) experience	3.3228	18	18																	
Sense of Humor	3.3018	19	19	19																
Structured	3.2651	20	20	20	20															
Professionalism	3.2625	21	21	21	21	21														
Experienced lecturer	3.2598	22	22	22	22	22	22													
Out of class accessibility	3.1864	23	.	.	23	23	23	23												
Outgoing personality	3.1785	24	.	.	24	24	24	24	24											
High academic standards	3.1207	25	.	.	.	.	.	25	25	25										
Relaxed demeanor	3.1129	26	.	.	.	.	.	26	26	26	26									
Technological proficiency	3.0761	27	.	.	.	.	.	.	27	27	27	27								
Professional certification(s)	2.9764	28	.	.	.	.	.	.	.	.	.	28	28							
Educational credentials	2.9344	29	.	.	.	.	.	.	.	.	.	.	29	29						
Repetitive (content/ concepts)	2.7612	30	.	.	.	.	.	.	.	.	.	.	.	.	30					
Rigorous	2.6719	31	.	.	.	.	.	.	.	.	.	.	.	.	31	31				
Strict adherence to course materials	2.5774	32	.	.	.	.	.	.	.	.	.	.	.	.	.	32	32			
Established research record	2.5512	33	.	.	.	.	.	.	.	.	.	.	.	.	.	.	33	33		
Professional attire	2.5066	34	.	.	.	.	.	.	.	.	.	.	.	.	.	.	34	34	34	
Rank/title	2.3150	35	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	35

3.5486) as similar in perceived importance, albeit less positive contributors. Receptiveness to [student] questions, timely feedback, responsiveness, a caring attitude, organized presentations, clear presentations, and concise explanations made up a second cluster with means ranging from 3.5092 to 3.4331. A third cluster included engaging, encouraging, dynamic presentations, and work [industry] experience. A sense of humor, structure, professionalism and experience as a lecturer were clustered in a fourth group. Out of class accessibility, an outgoing personality, and high academic standards reflected no statistically significant differences. The remaining ten traits were rated lower and showed fewer instances of statistical significance when compared to traits rated similarly.

The suggested clusters of traits were not tested using "cluster analysis," and the groupings described above appear to overlap with no clear-cut demarcations between the groups. It was apparent that respondents were fairly specific in the traits they considered to contribute the most and the least to good teaching. "Content/subject matter expertise" at the highest end and "Rank/title" at the lowest end were the only traits that reflected statistically significant differences with all other traits in the survey.

Most Important Traits

Respondents were also separately asked to list in order (from most important to least important) the five traits that contributed most to good teaching; space was provided on the survey for additional answers. Each trait was scored on a 1

to 5 scale, where 5 reflected the "most important trait" and 1 reflected the "fifth most important trait." Each trait was listed at least once in the top five contributing factors by one or more students. Table 2 reflects the most important traits as ranked by the survey respondents using a weighted average to arrive at their scores. As with the results reported for the ratings of the extent of contribution, "content/subject matter expertise" was the ranked as the most important trait. This trait was listed most often of the thirty-five traits in the survey list (155 respondents included it in their top five). It was ranked as the most important trait more often than all other characteristics.

The ratings reflected in Tables 1-A and 1-B are statistically consistent with the rankings reflected in Table 2. A rank order test was conducted

Table 2
Traits Rated as Most Important Factors In Good Teaching
(Order Reflects a Weighted-Score from Most Important)

Traits	Most (+5)				Fifth Most (+1)	Score
Content/subject matter expertise	94	24	16	12	9	647
Strong communication skills	30	27	25	27	17	404
Approachability	28	25	27	22	33	398
Work (industry) experience	20	32	12	6	8	284
Class preparedness	14	20	22	23	14	276
Sense of Humor	16	16	23	20	23	276
Caring attitude	13	20	24	14	19	264
Organized presentation	15	14	18	20	12	237
Timely feedback	8	20	18	23	15	235
Respectful	17	16	12	13	13	224
Fair	5	16	17	20	25	205
Clear presentations	13	13	11	21	15	207
Engaging	12	7	10	15	29	177
Concise explanations	7	13	14	11	12	163
Professionalism	4	11	14	15	10	146
Enthusiastic	11	4	11	16	15	151
Dynamic presenter	11	11	8	10	7	150
Encouraging	4	8	13	19	14	143
Experienced lecturer	5	8	14	10	14	133
Technological proficiency	10	7	8	1	10	114
Receptive to questions	4	7	11	7	10	105
Outgoing personality	5	9	5	8	7	99
Educational credentials (e.g., PhD, Masters)	8	8	5	3	2	95
Structured	4	9	5	7	7	92
Responsive	3	7	7	7	7	85
Out of class accessibility	2	4	9	12	6	83
High academic standards	5	3	6	6	6	73
Relaxed demeanor	4	2	5	6	8	63
Professional certification(s)	2	8	3	3	1	58
Established research record	3	9	2	0	1	58
Repetitive (content/concepts)	2	3	5	2	4	45
Professional attire	1	0	0	0	4	9
Rank/title	1	0	1	0	0	8
Rigorous	0	0	0	2	2	6
Strict adherence to course materials	0	0	0	0	2	2

between the two lists. The lists reflected a rank order correlation of Ø.8513.

Least Important Traits

Respondents were also asked to identify the five listed traits that contributed the least to good teaching; space was provided on the survey for additional answers. Each trait was scored on a -1 to -5 scale where -5 reflected the "least important trait" and -1 reflected the "fifth least important trait." Each trait was listed at least once by one or more students. Table 3 reflects the least important traits as ranked by the survey respondents, again using a weighted average to arrive at their scores. Consistent with the results reported for the ratings of the extent of contribution, "rank/title" was ranked as the least important trait. This trait was listed most frequently of the thirty-five traits in the survey list (254 respondents listed the trait as a "least important" trait, and it also was listed as the least important most often (79 times). "Professional attire" was listed as a least important trait" less often (22Ø times) but was identified more frequently as the least important trait (91 times). Of note, all of the traits were ranked by at least two respondents as falling in the list of least five important qualities.

The ratings reflected in Tables 1-A and 1-B are statistically consistent with the rankings reflected in Table 3. A rank order test was conducted between the two lists. The lists reflected a rank order correlation of Ø.8711. The list in Table 2 was compared with the list in Table 3. The rank order correlation between the two rankings was Ø.663Ø.

CONCLUSIONS

Prior to discussing the findings, it is important to acknowledge the limitations of this study. This study focused on data gathered from both undergraduate and graduate students at one public Midwestern university business school. This involved analyzing 381 survey responses. While it is possible that the data collected would be consistent with other student populations at other institutions across the country, caution is advised in making generalizations.

Experienced instructors know that "teaching" is a constantly evolving process, and though it may be relatively easy to identify "good teachers" by reputation, describing exactly what makes for "good teaching" is no easy task. Clearly, what makes someone good at his/her vocation will not always be the same for everyone. Most teachers, no matter "good" or "bad," want more for their students and thus strive for constant improvement. In addition, faculty members have many reasons to take an interest in student opinions of "good teaching." The goal of this paper is to provide the student perspective on the topic of teacher effectiveness.

In this study respondents rated content expertise as the trait which contributed most to good teaching, followed by communication skills, preparedness, approachability, fairness, and respect [for students]. Indeed, respondents were fairly specific in the traits they considered to contribute the most and the least to good teaching. "Content/subject matter expertise" and "Rank/title," falling on opposite ends of the scale, were the only traits that reflected statistically significant differences with all other traits in the survey. "Rank/title" contributed least to good teaching in the eyes of the students. However, there were a variety of traits in addition to rank/title, that students found to be much less important with respect to good teaching, including professional attire, research record, adherence to course materials, rigor, and credentials. If asked, most faculty might say that substance is more important than form when it comes to student learning. Survey results suggest that students believe the same thing when it comes to quality instruction.

Table 3
Traits Rated as Most Important Factors In Good Teaching
(Order Reflects a Weighted-Score from Least Important)

Traits	Least (-5)				Fifth Least (-1)	Score
Rank/title	79	61	39	38	37	-869
Professional attire	91	53	34	17	25	-828
Established research record	28	48	35	43	21	-544
Strict adherence to course materials	27	23	39	32	39	-447
Rigorous	28	34	24	37	22	-444
Educational credentials (e.g., PhD, Masters)	14	22	31	23	23	-320
Technological proficiency	21	9	20	18	24	-261
Professional certification(s)	9	21	19	27	19	-259
Repetitive (content/concepts)	18	19	14	19	12	-258
Sense of Humor	11	10	13	10	13	-167
Work (industry) experience	8	9	9	11	17	-142
Relaxed demeanor	4	7	17	9	10	-127
Outgoing personality	3	7	10	15	5	-108
High academic standards	5	7	10	4	9	-100
Dynamic presenter	3	7	10	8	10	-99
Experienced lecturer	2	5	7	9	16	-85
Professionalism	4	4	8	6	10	-82
Engaging	3	5	1	3	10	-54
Enthusiastic	4	5	1	2	6	-53
Caring attitude	5	1	3	5	3	-51
Out of class accessibility	1	1	5	7	8	-46
Timely feedback	1	5	4	2	2	-43
Content/subject matter expertise	3	2	1	3	5	-37
Responsive	2	2	3	3	3	-36
Structured	0	1	2	7	9	-33
Receptive to questions	1	3	2	3	4	-33
Encouraging	0	3	4	2	3	-31
Fair	2	1	2	4	3	-31
Class preparedness	2	0	2	5	2	-28
Approachability	1	2	2	3	3	-28
Organized presentation	1	1	2	4	2	-25
Strong communication skills	0	1	3	1	2	-17
Concise explanations	0	0	3	1	2	-13
Respectful	0	1	2	0	0	-10
Clear presentations	0	1	0	0	2	-6

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Implementing a "SWIF" Program in an Undergraduate Strategy Course: Processes, Results and Recommendations

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ABSTRACT

As faculty charged with the continued development and delivery of our college's capstone strategy course, we implemented a student-written, faculty-facilitated (SWIF) case project into the curriculum beginning in the spring semester of 2011. Our objective was to integrate three main areas of our professional lives: teaching (i.e. student learning), academic scholarship (i.e. publishing), and community involvement (a component of professional service). In this paper we address the challenges associated with finding case sites and identifying case foci, and then discuss a number of specific issues related to project description, assignment instructions, and deliverables. We conclude by describing several ways in which are currently attempting to close the gap between the promise and the reality of a SWIF case program.

INTRODUCTION

Business schools in institutions of higher learning often employ a mix of three pedagogical approaches: lecture, small group discussion and experiential learning, and a "case" approach. At the University of Texas at Tyler College of Business and Technology (CBT), the capstone course for the Bachelor of Business Administration (BBA) degree has traditionally relied on a mix of traditional lecture and case analysis. The case component of the course is intended to establish a learning environment in which students can integrate accumulated competencies and knowledge in a simulated experiential setting. The capstone strategy course is required of all BBA candidates majoring in accounting, finance, management or marketing.

As faculty charged with the continued development and delivery of CBT capstone strategy course, we made the decision to integrate a student-written, faculty-facilitated (SWIF) case project into the curriculum beginning in the spring semester of 2011. We were motivated by the possibility that a properly-implemented SWIF case program would allow us to integrate and cross-fertilize three main areas of our professional lives: teaching (i.e. student learning), academic scholarship (i.e. publishing), and community involvement (as a component of professional service). We were optimistic that a SWIF program would bring together faculty, students, and practitioners in a way that would create value for everyone involved (Ross, Zufan & Rosenbloom,2008).

A SWIF program appeared to have the potential to bring these different job demands into mutually-beneficial contact by creating a situation in which students would engage in action learning in a host business and the work product from that interaction would benefit the students (by giving them valuable experience in a real-world business setting), the business (by giving them access to student recommendations), and faculty (by jumpstarting the academic case-writing process

that would culminate in published cases based on student work in peer-reviewed case journals).

Although we hoped to be able leverage the SWIF case approach enhance our ongoing scholarly efforts and to contribute positively to our ability to provide meaning community service, we made the conscious decision to focus first on the its direct impact on student learning. Paul Swiercz, a leading proponent of the SWIF case model, emphasizes the action learning aspect of the SWIF model as follows:

> Among educators, traditional case teaching has unquestionable value, but it also has a major limitation: traditional case methods limit the student to the role of analyst. In contrast, SWIF converts case teaching into an active learning experience by requiring students to assume a variety of new roles such as researcher, petitioner, interviewer, negotiator, writer, editor, team-member, etc. This approach allows students to move from passive case analyst to active case developer (2003, p. 1).

CONTRIBUTIONS

This paper is structured as follows. We provide some background information on businesses cases and then summarize the SWIF case model. We then elaborate on two particular challenges of implementing a case SWIF case project: 1) Finding the case site, and 2) Identifying the focus of the case. We then discuss a number of specific challenges related to project description, assignment instructions, and project deliverables. Finally, we conclude by discussing the difficulty of closing the gaps between the promise and the reality of a SWIF case program based on our experiences as we've attempted to implement such a program over that last year and a half (beginning in January 2011). This paper makes the following contributions to the pedagogical literature on case-based action-learning programs (such as SWIF):

- We identify (and offer advice) on two immediate implementation challenges (i.e. finding case sites and identifying case foci)
- We discuss specific challenges related to project description, assignment instructions, and deliverables, and then describe ways in which we have adapted our program to address some of these challenges
- We discuss the ways in which are currently attempting to close the gaps between the promise and the reality of a SWIF case program as part of our continuous improvement efforts

TYPES OF CASES

In *The Case Study Handbook,* William Ellet, a professor at the Harvard Business School, describes his experience working with business students over the last sixteen years (Ellet, 2007). He reports that many students have acquired much of their business knowledge through lecture, discussion, and small group action learning situations. Ellet defines a cases as "substantial studies from business schools or corporations, not the slender vignettes included in many business textbooks" (Ellet, 2007, p. 5). Cases typically describe a particular situation or decision context in detail, primarily in narrative form, but do not provide any explicit answers or solutions. Ellet identifies four types of situations that occur repeatedly in cases.

A problem case describes a situation in which there is a significant outcome or result, but no explicit causal explanation is provided. To put it simply, a problem case is a situation in which something important has happened, but we don't know why.

A decision case focuses on a specific situation in which a decision is required. Regardless of the dimensions of the decision, analyzing it requires generating options, specifying criteria and providing relevant evidence.

Evaluation cases involve expressing a judgment about the worth, value, or effectiveness of an organizational outcome. An annual performance evaluation of an employee represents a real world example of this kind of case.

A rules-based case provides critical information about a particular business situation and then requires quantitative analysis of that situation. For example, a Net Present Value (NPV) calculation may be required. To complete the analysis, the student needs to know the type of information needed, the appropriate rule, the correct way to apply the rule and the data necessary to execute the rule.

Ellet describes the substance of a case. John Quelch, also of the Harvard Business School,

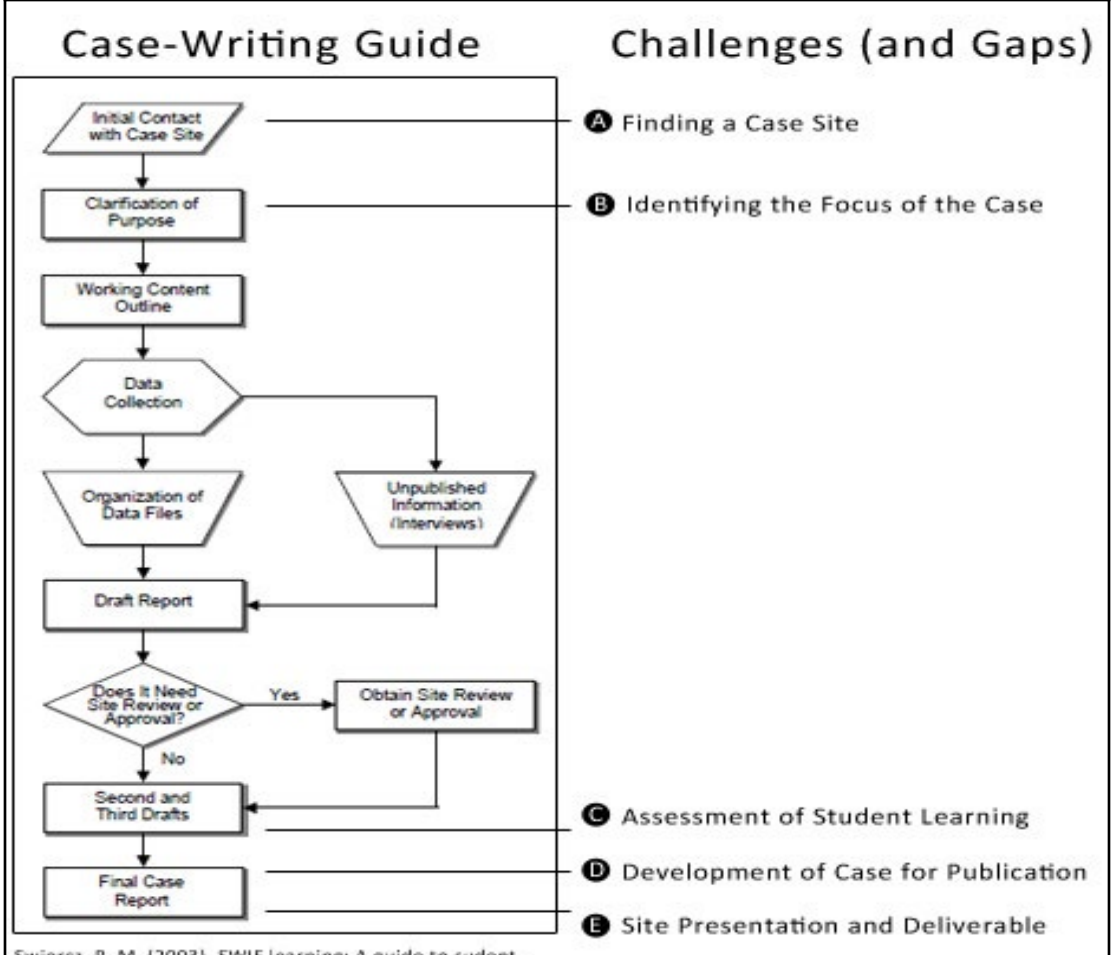
has stated the following about cases: "Basically, it needs a start, a middle, and an end. . . you also need an exciting problem and a sense of the personalities involved" (Swiercz, 2003, p. 6). The SWIF Process builds on the idea that faculty want to give students the opportunity to develop their abilities to resolve specific problems (Malo, 2010).

THE SWIF CASE MODEL

The primary guide for formulating and implanting the SWIF program in the BBA capstone course was the guide written by Professor Paul Michael Swiercz at The George Washington University School of Business (2003). The guide has two sections. The first section provides information on the case writing process. It addresses the rationale for writing and studying cases. It points out that cases have the unique advantage of integrating theory and practice. Cases help students develop a tolerance for ambiguity and recognize the importance of separating the significant from the trivial. The guide also includes a summary of action steps for writing a case.

The second section of the guide provides several data resources and tools for evaluating cases, such as a "Self-Evaluation Checklist" for a Case Study Report. This guide was particularly important in implementing a SWIF program in the CBT at The University of Texas at Tyler. Exhibit 1 provide an overview of the SWIF case process and

EXHIBIT 1
THE SWIF CASE APPROACH AND CHALLENGES



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highlights the primary areas that we focus on in this paper.

FINDING THE CASE SITE

There are several ways to address this challenging task in the SWIF Program. One avenue is for the faculty members to identify case sites and assign them to the students. This allows the faculty member to influence the students toward a particular industry, organization or research interest. Another avenue is for an enterprise to request a SWIF Project. Whether for-profit or not-for – profit an organizational leader may want to have described in a case their tipping point type decisions that has been important to the organization. The students also could be asked to identify an organization and then seek the faculty member's approval. Students may have work experience with an organization or they may even want to enter the industry of the client company and seek to learn about it from a SWIF experience.

For the CBT a mixed approach is used. That is, a collaborative effort between the faculty member and the students. For both parties the source list of SWIF case sites is larger than anticipated at first. These include:

- Faculty and Staff Networking—Faculty and students have accumulated an array of organizational possibilities in their academic or professional careers to this point
- Community Based Organizations --- There are a number of organizations in the University of Texas at Tyler market that serve as sources for projects. These include
    - Tyler Economic Development Corporation—they often have prospecting companies that are seeking or have received funds for economic development
    - Tyler Area Chamber of Commerce—The members of the Chamber are regularly highlighted for their business contribution to the community. Several of these organizations are highlighted in newsletters
    - Hispanic Business Alliance—The geographic area is increasingly populated with Hispanic businesses. They are certainly candidates for SWIF projects as they enter the arena of the area
- Small Business Development Centers—These organizations certainly know of successful and unsuccessful startups who have sought Small Business Loans. In addition, several in the area have "incubators" that have supported successful and unsuccessful business from idea to consumer.
- SCORE Chapter—The Service Core of Retired Executives provide businesses in the area with consulting support and coaching toward success. The "coaches" serve as a source of SWIF ideas and their clients may serve as "sponsors".
- Bankers—With the intent to enhance the economic wellbeing of the area, bankers, especially community banks, are a source of success stories that students and faculty may find attractive for SWIF projects
- Accountant and Attorneys—Those professional who have served and built up a client base of emerging enterprises are sometimes willing to introduce a SWIF team to an opportunity for case writing
- Business Newspaper Sections and Journals—Public media often highlight a successful business in their publications. Digging one step deeper, the business editor for these publications is a worthy source for SWIF prospects.

Sort the List

Once the brainstorming and prospect identification has reached the needed level the next step is to sort the list according to some preset criteria. The can include:

- Key Contact person available, interested and informed about the project
- Project Timing meshes for client, students and faculty
- Willingness to provide history and adequate information to complete the project

Find the Entry Point

Essential to the SWIF project will be the enterprise contact point. Student and or faulty must determine the availability of this person or their representative during the duration of the project.

Brief the Enterprise about the SWIF Project

This briefing not only describes the objective of the SWIF Program but also the roles, scope and responsibilities for each party involved. This includes student, contact person(s) and faculty. This process can be greatly enhanced with a commitment that the students will provides a project plan and a mutually agreed to Work Break Down Schedule.

Of utmost importance to most client organizations is the confidentiality and use of client organization information. This can be addressed by consensual agreement and/or a mutually agreed to document. Issues such as the integrity expectations, protection of sensitive information and privacy are critical parts of the agreement between client organizations and students/faculty

Initial Contact with the Site

At this point the process flows with the steps identified in Exhibit 1.

IDENTIFYING THE FOCUS OF THE CASE

Given the four types of cases described by Professor Ellet, the student and faculty member embark on the process of finding the subject. Finding the right subject is a challenge. Assuming that the case site has been identified there are three general approaches that either the student or the faculty or both could call upon to begin the identification of a case subject. One, certainly is the "issue-oriented" approach. Another builds on the work of David Cooperrider and his colleagues at Case Western Reserve is the "Appreciative Inquiry "Approach. A third is to utilize an archival approach and use secondary resources. At the CBT the third approach is only used in the capstone course when a site owner changes their mind or the student and faculty team is unsuccessful finding a willing and capable client organization which will honor the time boundaries of the semester.

Issue-Oriented Approach

Upon securing the initial site and the primary point of contact for the project, this approach identifies the most important and urgent problem to address. The client company may well have allowed the onsite visit in order to secure assistance in solving a current or lingering problem that makes a real contribution to the performance of that part or the total organization. A conversation evolves into the client organization identifying the problem they need most to solve or one that allow the "trust building" process to begin and then be established. After one or more conversation the faculty or student will be able to generate a list of one or more problems to be solved. Using criteria such as importance and urgency the list can be narrowed and a mutual helpful decision are reached. This allows the student or faculty or both to enter a behavioral contract that creates the learning experience for all parties.

Appreciative Inquiry Approach

An alternate approach that is increasingly being utilized is the Appreciative Inquiry Approach. Professor Robert Quinn at the University of Michigan has written, "Appreciative Inquiry (AI) is creating a positive revolution in the field of organizational development and change management" (Cameron, Dutton, & Quinn, 2003). Give that most cases present a context and specific information for a student to discern the problem and offer solutions and implementation tactics a significant change is needed to enhance the situation and organizational performance. The traditional way to bring about change is to look for the problem, do a diagnosis, and then find and implement a solution. The primary focus is on what is wrong or needs to be fixed. In many cases, such a focus can lead to an inappropriately narrow approach that can magnify problem rather than resolve them. AI suggests an alternate approach. It suggests that the primary focus be on identifying what is working in an organization and explicitly addressing how change might be encouraged (de Echevarria, 2010). AI should be viewed as another tool in the case writer's tool bag.

AI can be described in many ways—as a philosophy and methodology for change leadership—here is a practice –oriented definition from David Cooperrider and Diane Whitney:

> "Appreciative Inquiry is the cooperative, coevolutionary search for the best in people, heir organizations, and the world around them. It involves systematic discovery of what gives life

> to an organization or a community when it is most effective and most capable in economic, ecological and human terms (Cooperrider & Whitney, 2005, p. 8).

In AI, intervention gives way to inquiry, imagination, and innovation. Instead of negation, criticism, and spiraling diagnosis, there is discovery, dream, and design. AI involves the art and practice of asking unconditionally positive questions that strengthen a system's capacity to apprehend, anticipate and heighten positive potential. Through mass mobilized inquiry, hundreds and even thousands of people can be involved in co-creating their collective future.

AI assumes that every organization and community has many untapped and rich accounts of the positive—what people talk about as past, present, and future capacities, or the positive core. AI links the knowledge and energy of this core directly to an organization or community's change agenda, and changes never thought possible are suddenly and democratically mobilized (Cooperrider & Whitney, 2005).

Related Research

To test implementation ideas and customize the SWIF Program and Process to CBT two other resources were utilized. In the research for work done by Professor Swiercz and his colleagues at George Washington an article published in 2005 was found in the Journal of Management Education (Bailey, Sass, Swiercz, Seal, & Kayes, 2005). The article primarily addresses two classroom learning challenges. The first is designing team work assignment that achieves a variety of important learning outcomes and second was addressing the classic social loafing. The primary learning vehicle for the research was the SWIF case learning approach. The program at CBT does seek to satisfy a number of learning outcomes. In addition, to address the social loafing issue a team project plan, then status report preceded a written and in-class presentation of the SWIF case. The team is also asked to complete a peer evaluation process to identify the type and range of important team behavior experienced in the SWIF case writing process.

An additional reference was found where the SWIF process was being used in legal education. Dr. Theodore Lynn utilized the two previously cited Swiercz et al articles and built his findings using the SWIF case learning approach to enhance the team work and problem solving skills of law school students (Lynn, 2009). Dr. Lynn's work provides the opportunity for students to work on unstructured interdisciplinary tasks characteristic of cross-functional teams that are found in larger law firms and multinational corporations. The work suggests, at the very least the use of SWIF for teaching of corporate governance is worthy of further study.

IMPLEMENTATION & RESULTS

We understood from the outset that our ability to successfully implement a SWIF program would be constrained by other ongoing demands on our time. We did not petition our institution for additional resources. Our intent was to experiment with the SWIF model in the context of fulfilling out teaching obligations. We reasoned that if we could successfully create a program that simultaneously enhanced student learning, increased the visibility of our institution in the community, and spilled over into our efforts to produce peer-reviewed scholarly work in the form of publishable teaching cases, we would be able to make a convincing argument for additional institutional support at some point in the future.

We engaged in limited planning during the fall semester of 2010 and formally incorporated a SWIF program into our undergraduate capstone strategic management course in the College of Business and Technology at the University of Texas at Tyler in the spring semester of 2011. The present commentary and reflections are drawn from our efforts to adapt and refine the SWIF case approach over four academic periods: Spring 2011, Summer 2011, Fall 2011 and Spring 2012 (in progress). During this time, we supervised a total of 83 SWIF case projects.

We encountered a number of challenges and modified the basic SWIF case model outlined above in a number of different ways to meet those challenges. We highlight three particular areas in which we made substantial modifications.

Project Description

Although the SWIF case approach offers the promise of engaging student in a type of action learning, it does so by requiring students to participate in the pedagogical process. Although this was apparent to us at the outset, we under-

estimated the difficulty created for students to understand the case writing process from pedagogical process.

For example, external analysis is a staple of strategic management texts. After covering this topic in the course, most students are able to demonstrate a working knowledge of the basic concepts of an external analysis—including the basics of Porter's Five Forces of Competition Model—and are capable of apply that knowledge if required to do so. In the past, for example, we have required to students to select a particular industry, and then use information available in the library (or in library databases) to conduct a Porter's Five Forces analysis of their selected industry. Most students are able to perform this task reasonably well without much additional instruction or oversight.

What may seem like a relatively simple exercise becomes much more challenging in the context of writing a case. For example, Porter's Five Forces Competition Model becomes a tool that students should anticipate readers of their cases using in their own analyses rather than an exercise they are expected to complete. In other words, students may find themselves in a situation in which they must first do a Porter's Five Forces analyses, at least informally, so that have a good understanding of the idiosyncrasies of competition in the industry in which their case is set, but their analysis will not be included directly in the case. Instead, their analysis should give them sufficient insight to decide what information they should include in the case itself so that readers of the case could conduct a Porter's Five Forces analysis of their own.

Given the different kinds of cases described above (problem, decision, evaluation, rules-based), it can become extremely difficult to explain the process of case writing, particularly to students uncomfortable with ambiguity, in a satisfactory way. Although it may be easy to communicate the general idea of a case (e.g. that a case is a narrative that describes a particular problem or decision context and then provides enough information for the reader of the case to participate in finding a solution or making a decision, etc.), it becomes much more difficult to give the students a basis for deciding what information to include in the case (and what information to exclude).

In other words, teaching students how to conduct a Porter's Five Forces analysis is one thing, teaching them how to create on paper an interesting and constructive forum in which other students can "practice" conducting a Porter's Five Forces analysis in the larger context of solving a particular problem or making certain decision recommendations is another. It is the difference between teaching students to golf—and teaching them how to design golf courses. We refer to this challenge as the "pedagogical turn" and revisit it in our discussion of gaps in the SWIF case approach below.

We raise the issue of the challenge of the pedagogical turn here to explain the first are of significant experimentation. We presented the project in at least three different ways, each of which emphasized the pedagogical turn to a different degree.

In the first semester (Spring 2011), we presented the project as a case—and provided material describing the nature of business cases and some basic instruction about how to go about writing a case. In addition to writing their own case as a class project, they were also required analyze a number of cases during the course of the semester, so we expected students would quickly become familiar with the format of a business case, if they weren't already.

In subsequent semesters, we reframed the assignment in different ways. We referred to the project in one class as a "strategic assessment." In another we described it as a thorough "SWOT" analysis. In each of these instances, the effect was to remove the pedagogical turn and allows students to focus on applying certain analytical frameworks and/or analytical tools directly. In retrospect, we realize that these changes altered the nature of project substantially. In terms of the overall objectives of the SWIF case project—enhanced learning, community involvement, and peer-reviewed scholarship—the effect of streamlining the project by deemphasizing the pedagogical turn may have enhanced student learning in some respects (by making the application process more straightforward), but reduced the utility of the project in terms of pedagogical scholarship. Again, we discuss this in more detail in our discussion of gasp in the SWIF case approach below.

Assignment Instructions

The courses in which the SWIF case approach was implemented varied from traditional face-

to-face formats, to hybrid courses with limited face-to-face interaction, to courses that were taught completely online. In face-to-face classes, verbal instruction and ad hoc explanations were delivered directly to the students. In the case of hybrid or online courses, initial ambiguity in the project description and/or instructions produced a flood of emails and phone calls seeking additional information, direction, and/or clarification. Attempts to adequately explain the project and answer anticipated questions, particularly in online courses, resulted in a 7 page single-spaced "Project Guide" that attempted to address everything from a general overview of the project, to the format of the final draft of the project, to how the project would be graded (Beal, 2011).

Class size (often 50+ students) made the assignment of individual project impossible (given other work demands). Project were completed, therefore, in team of 3-5 students. This raised the prospect of free-riding and created a situation in which team dynamics could create problems that interfered with student learning (e.g. conflicting work schedules, conflicting personalities, etc.). A series of peer evaluations was implemented during the semester to allow students to rate the individual contributions of team members.

Variation and adaptation in this area involved the aspects of the project that were emphasized in the project instructions. In some cases, aspects of project planning were emphasized (e.g. selection of a team leader, defining team roles, development of a project timeline, etc.). In other cases, these processes were left up to the team and emphasis was placed on the expected deliverable.

Deliverables

Ideally, a SWIF case approach would involve a case site (e.g. a host business). In the majority of cases, however, time constraints precluded us from securing host sites for SWIF teams. In these cases, teams were encouraged to select a business that could be researched using archival means. In terms of student learning, an archival approach has both its advantages and disadvantages. If students select the right type of business (e.g. a larger publically-traded company), then far more information can be accessed in a few hours than can be used in a case project. The challenge then becomes how to sift through this information and decide what will be used, given the focus of the case and its structure. This approach allows the students to begin grappling with the case writing process more quickly and to devote more time to appropriately structuring the case. On the other hand, host businesses represent an action learning environment pushes students out of their comfort zones in numerous different ways and offers a number of unique and often idiosyncratic opportunities for learning not afforded by an archival approach.

In terms of the effect of our SWIF case efforts on community involvement and on our scholarship efforts, however, archival projects were a poor substitute for host sites.

CONCLUSION

We set out with the intent of leveraging a SWIF program to integrate and cross-fertilize three main areas of our professional lives: academic scholarship (i.e. publishing), teaching (i.e. student learning), and community involvement (as a component of professional service). A year and half into our implementation efforts, reflection on our progress to date suggests that significant gaps remains between our initial objectives and the program as it currently exists.

A SWIF program offers students the opportunity to engage in action learning in a host business. We had hoped that the project deliverable would benefit both students (by giving them valuable experience in a real-world business setting) and the business (by giving them access to student recommendations). While we believe that students have benefits from the SWIF program, this benefit has been limited by the necessity of encouraging archival cases, due to faculty time constraints. Finding host businesses and facilitating student engagement has proven to be particularly time consuming. Improving this aspect of our SWIF program would, we believe, require additional instructional resources. We also have reservations about the pedagogical value of requiring students to engage directly in the pedagogical process.

Developing student cases in the interests of scholarship has proven to be particularly challenging. Although student work has created opportunities for additional faculty interaction with community businesses, student deliverables, to this point, have not been of sufficient quality to support publication efforts. One of the barriers to incorporating student work into ongoing

scholarship efforts is the difficulty of getting students past the "pedagogical turn." Students tend to gravitate toward direct application of strategic management principle rather than engage in the case writing process with the explicit purpose of encouraging the reader to explore these principles on their own in the context of the case material. Consideration will be given in the future to having the students also develop an appropriate teaching note which may facilitate getting past the "pedagogical turn".

It is critical that host businesses benefit from engagement in the SWIF process. Our experience to date suggests that the level of benefit a business derives from the process tends to be directly proportional to the level of direct faculty oversight. In situations in which this has been possible, businesses have reacted positively. In cases in which students have had to manage the process on their own, reactions have been mixed.

We believe that continuous improvement efforts are largely dependent on our ability to not only refine aspects of the SWIF approach, but also to secure the additional resources required to expand and adequately oversee the SWIF program.

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Linking Program Level Assessment to Course Level Assessment Activities

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ABSTRACT

Assessment, or better stated, the assurance of student learning, has become a central issue in both the internal and the external evaluations of degree programs offered by colleges and universities. The continual importance of assurance of learning activities within institutions of higher education has generated a growing need to create empirical assessment efforts that are both meaningful and relevant to whatever goals and objectives an institution of higher education plans to achieve. Most of the learning that the institutions seek to assure takes place in the context of individual courses. For that reason progress in making assessment measurements more impactful suggests an approach that links specific class assignments and activities to specifically desired learning outcomes. The present paper presents an Assessment Validation Model. The model points out the linkages between and among activities relevant to assessment. The paper also provides empirical data that both demonstrate the effectiveness of the AVM and focus on validating the relationships between university level assessment objectives and learning objectives designed to be achieved within an individual class.

Introduction

As a result of a variety of pressures and incentives, assessment activities have become a central issue for discussion, study and action on university campuses.(Black & Duhon 2003) Governmental agencies, private foundations that provide funding for university programs, and accrediting agencies are increasingly requiring that institutions of higher education provide credible evidence of the effectiveness of their programs in meeting the frequently lofty objectives and goals stated in their proposals for funding, in their bulletins and on their web sites (AACSB 2007; Folger 1977; Martel 2007). Additional pressure is being applied by both students and parents faced with paying increasing tuition and fees (Burke 2005; Peterson 1999). Students are especially concerned about whether the high level of debt they have assumed in order to pay their educational expenses will, over time, yield a positive cost/benefit ratio (Business Week 2012, Porter 2002).

An additional source of pressure on universities to increase their assessment efforts is generated by the increase in the numbers of for-profit universities in general and, more specifically, those institutions that stress a direct connection between the programs they offer and specific fields of employment (Deming et. al 2011, Fain 2011).

In addition to these specialized programs community colleges are being advised, or in some instances directed, to focus more on employment based programs of study (Goldstein et. al 2012, Page 2012).

WHAT IS ASSESSMENT?

Assessment is the act of measuring student learning and the goal of an assessment system is to ensure that curricula and programs are effectively meeting the needs of students and, especially in the case of a business school, the expectations of our constituent employers. Institutions of higher education have, over many years, created plans and implemented programs directed toward assessment or, as perhaps better stated, assurance of learning programs. These efforts are directed toward individual programs offered by individual colleges (see, for example, AACSB White Paper No. 3 (2007)). As such, assessment provides a mechanism for evaluating the impact of courses on students' development, and allows for a data-driven process for the continuous improvement of curricula and programs. Palomba & Banta (1999), for example, define assessment as the systematic collection, review and use of information about educational programs undertaken for the purpose of improving student learning and development.

While there seems to be consensus regarding the importance of assessment, arriving at a comprehensive and agreed upon operational definition of assessment seems to represent a very real challenge. Take, for example, the multiplicity of approaches to assessment suggested to business programs by accreditors, colleagues, and assessment experts (AACSB 2003, 2007; Bennis & O'Toole 2005; Martell & Calderon 2005; Pringle and Michel 2007; Martell 2007; Rubin & Martell 2009; Suskie 2004; Walvoord 2004). This lack of consensus regarding assessment measurement seems to have led to operational definitions that are situation specific and often border on the idiosyncratic (Eshenfelder, Bryan & Lee 2010). At one end of the range of assessment operationalizations is the long-held notion that assessment can be equated to grading. At the other end of the range, some educators believe that assessment requires a more abstract approach that measures learners' empowerment (e.g., Novak 2002). Left to their own interpretations about assessment activities, some faculty members seem to draw upon the classics and operationally define the concept as: "doing as I am doing" (Tallise 2003).

It's understandable why many faculty members hold to the idea that grades are the best measure of assessment and serve as empirical proof of the assurance of learning. However, serious discussions of learning, for example, Hill (1970), among many others, indicate that grades are really not a measure of " learning" but a measure of" performance". Performance is what we as faculty members test and evaluate and we do so precisely because we cannot empirically measure how much a student may have learned beyond the answers to the questions we have chosen to ask and the assignments we have chosen to require (Berrett 2012).

Assessment requires something beyond offering simple literary definitions of the concept and certainly beyond the simplified individualistic ostensive definitions based entirely on grades or subjective observations. These definitions are not completely wrong, they are just not complete and do not provide the information needed to determine, to the satisfaction of all parties concerned, whether or not the data collected and analyzed represent demonstrable assurance of learning outcomes. Whatever the definition of the concept of assessment or assurance of learning, the evidence for and the validation of these concepts must be found in results yielded by empirical research. Assignments are the principle vehicle for delivering student feedback relevant to the assessment process. Student feedback is most effective when it can be explicitly connected to specifically defined learning goals and objectives (Araund & Wakefield 2006; Nichol & McFarlane 2006; Hattie & Timperly 2007; May & Tidwell 2007; Sampson & Betters-Reed 2008; Choi, Tong & Kelley 2010; Gikandi, Morrow & Davis 2011)

The challenge, then, is to connect course-level activities with program level assessments. The Assessment Validation Model (AVM) (see Figure 1) outlines the appropriate steps for proceeding to assess an individual course or a program of courses. The process begins with a delineation of specific goals of the institution and proceeds to a choice of course objectives relevant to the institutional goals. Based upon the course objectives, the model requires that specific measurement methods and the appropriate measurement outcomes that are interpreted as proof that these objectives

have been met be clearly stated. Beyond these operations the model provides for course-program connections as the model measures the relationship between specific assignments/activities and the learning goals of a course and/or program. If the several measurements are in agreement, this represents a validation of the course objectives and the institutional goals and so illustrates the relationship between the course objectives and institutional goals.

ASSESSMENT: AN EXAMPLE STUDY

In this paper the authors present a successful faculty instituted approach to assessment. Our purpose was to demonstrate the relationship between University level goals and the learning objectives prescribed for sections of an individual course. While the course included many measurement methods (examinations, quizzes, various assignments), this particular assessment example will focus on a particular assignment called "Environmental Scan Reports. The purpose of the assignment was to reinforce student's understanding of Marketing terminology and strategy by having them bridge the gap from concepts covered in the textbook to contemporary business strategies and tactics reported within the business or popular press" (see O'Keefe, Kemp & Kelly 1996 and 2006 for more information on this assignment). As described below, assessing the effectiveness of this assignment involved linking the assignment to learning objectives for the course and those for the university overall.

Figure 2 presents the learning objectives for the course and those for the university. Assuring that these objectives have been satisfied requires proof derived from the outcomes of direct measurements of assignments such as the Environmental Scan.

Methodology and Measurements

The example study employed a six-item survey in which each question was related to course and university learning objectives (see Figure 2). The survey instructions informed the students that the Marketing Department was interested in assessing the degree to which the environmental scan assignments contributed to their understanding of basic marketing terminology, concepts, and strategy. The items were measured using five-point scale ranging from 1 (no contribution to my understanding) to 5 (significant contribution to my understanding).

The survey was administered at the same time as the course teaching evaluations. Both of the forms were distributed and collected by a student assistant. The instructor was not present when the data were collected. The results of both surveys were analyzed independently and the results reported to each instructor.

The course instructors had agreed that, in order to consider that a learning objective had been satisfied, at least 75% of the students surveyed had to report the course provided considerable or significant contribution to their student's attainment of a given learning goal. In other words, a learning goal was considered to be satisfied if 75% of the responses fell into the top two response options. Anything less than 75% would indicate that more time should be spent on a particular learning goal. The data are reported in Table 1.

Figure 1
Assessment Validation Model

Program Level	Mission (Goals)	
	Learning Objectives	
Course Level	Learning Objectives	
	Content	Feedback for Validation and Calibration
	Activities/Assignments	
	Assessment	

Figure 2
Course and University Learning Objectives

Course Learning Objectives

As measured by examinations, quizzes and a series of written environmental scan reports, students completing Marketing 3Ø1 are expected to:

- Demonstrate recall and recognition of basic marketing terminology and the operational (measurement based) definitions of relevant terms.
- Demonstrate familiarity with the basic elements of marketing strategy and the relationships between and among these elements.
- Demonstrate an understanding of the controllable and the uncontrollable variables relevant to the success or failure of marketing programs, tactics and strategies.
- Demonstrate an understanding of competitive advantage in a firm's marketing programs and strategies.
- Demonstrate the ability to bridge concepts discussed in the text and these same concepts appearing in articles within academic and practitioner publications and the popular business periodicals.
- Demonstrate improvement in both oral and especially written communication.

Relevant University-level Learning Objectives

- **Mastery of Content:** A DePaul Graduate will establish mastery of a body of knowledge and skills in depth and breadth.
- **Articulate Communication:** A DePaul graduate will be able to communicate articulately in both the spoken and written word, being able to read and listen critically in order to understand the conversation in progress, and to adjust diction and style to the anticipated audience, to the subject matter and to the purpose of the communication. The goal recognizes the necessity that a student's ability to communicate, keep pace with the subtlety, precision and depth of the student's knowledge, sensibilities and deliberative powers.
- **Critical and Creative Thinking:** A DePaul graduate will be capable of thinking critically and creatively, integrating knowledge and ways of knowing, making reflective judgments, identifying significant ideas and their underlying assumptions, biases and presuppositions.

Results

Table 1 summarizes the results of the student survey data collected to determine whether the Environmental Scan assignment contributed to student learning. As the results reported in Table 1 point out, in all but one instance, better that 75% of the students surveyed reported that the assignment had a positive impact on meeting the learning objectives specified for the assignment. Also the researchers chose relevant university level learning objectives and as can be seen in Table 1, the learning objectives specified for the class are concordant with those university objectives.

SUMMARY

Assessment or Assurance of Learning is serious business. Assessment plans are important but in the end institutions of higher education will be evaluated by how well and how rationally these plans are implemented and the results that implementation yields. Thus, institutions cannot simply expect that the whole will somehow be greater than the sum of its parts and that a mosaic of multiple, idiosyncratic assessment activities will somehow morph into a seamless portrait of assessment provides assurances that students have made appropriate gains while moving through a program of study.

Table 1
Relationships Between Assessment Items and Learning Objectives for the Course and University Goals

Class Learning Objective	Assessment Items Distribution (n=137)					University Learning Goal
	1	2	3	4	5	
Demonstrate **recall and recognition of basic marketing terminology** and the operational (measurement based) definitions of relevant terms.	1.5%	0.0%	10.9%	59.9%	27.7%	**Mastery of Content** A DePaul graduate will establish mastery of a body of knowledge and skills in depth and breadth.
Demonstrate **familiarity with the basic elements of marketing** strategy and the relationships between and among these elements.	0.0%	1.5%	16.1%	56.2%	26.3%	**Critical Thinking** A DePaul graduate will be capable of thinking critically and creatively...
Demonstrate an **understanding of the controllable and the uncontrollable variables** relevant to the success or failure of marketing programs, tactics and strategies	0.0%	2.2%	18.4%	50.7%	28.7%	**Critical Thinking** A DePaul graduate will be capable of thinking critically and creatively...
Demonstrate an **understanding of the controllable and the uncontrollable variables** relevant to the success or failure of marketing programs, tactics and strategies.	0.0%	1.5%	12.5%	44.1%	41.9%	**Mastery of Content** A DePaul graduate will establish mastery of a body of knowledge and skills in depth and breadth.
Demonstrate an **understanding of competitive advantage** in a firm's marketing programs and strategies	0.0%	2.2%	25.5%	51.8%	20.4%	**Critical Thinking** A DePaul graduate will be capable of thinking critically and creatively...
Demonstrate improvement in both oral and especially written **communication.**	0.7%	4.4%	19.1%	54.4%	21.3%	**Articulate Communication** A DePaul graduate will be able to communicate articulately in both the spoken and written word...

Note: A grey box indicates that a learning objective was satisfied because at 75% or more of the respondents reported that the assignment led to a significant to considerable contribution toward a course learning objective.

Colleges and universities are free to adopt and implement comprehensive assessment programs and to use the data derived from these programs to implement changes in various components of educational programs. Whatever the methods chosen, in the end the overarching goal of assessment programs is to encourage continuous improvement and innovation which are recognized as critical for maintaining progress and growth in both the private and public sectors of society. Currently, most assessment activities measure students' progress toward program-level learning goals. As most student learning takes place within individual courses, there exists a need to link the activities that happen within a course with the overall learning goals that are being assessed. The Assessment Validation Model (AVM) provides a mechanism for linking course activities

and program-level learning objectives. Using this model, it was demonstrated that instructors can see the impact of particular assignments on students' attainment of desired learning outcomes. Further, and perhaps most importantly, the information gained through the AVM can be used to highlight deficiencies in students' development and links the deficiency to particular course activities.

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An Investigation of College Students' Learning Styles in the US and China

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ABSTRACT

This research project explores learning styles of college students in the US and China. The Grasha-Reichmann Student Learning Style Scale, designed to measure how college students view their learning, was used as the main instrument for the current study. A total of 511 college students, 274 from the US and 237 from China, participated in this study. Results indicate that there are significant differences between the Chinese and American students in their reported learning styles, but not necessarily in the direction of conventional prediction. For example, the Chinese participants scored higher on the independent and competitive subscales than the American participants, reflecting a more individualistic tendency by the Chinese students than previously thought. Conversely, the American participants scored higher on the dependent subscale than the Chinese students. Some gender differences are also observed. These results are discussed in the context of traditional cultural orientations as well as current educational systems of the two countries.

INTRODUCTION

Educators have noted repeatedly that different students prefer different ways of learning. This has been verified by everyday teaching and learning experiences in the classroom. Most agree that learning style is a person's preferred way of obtaining and processing knowledge and information (Prichard, 2009). Information on students' learning styles may help instructors design and deliver their courses more efficiently and contribute to students' overall learning experiences.

Increasing numbers of scholars have developed different types of inventory to assess students' learning styles, for example, the Dunn Learning Style Model (Dunn & Dunn, 1993), the Felder-Silverman Learning Style Model (Felder & Silverman, 1988), the Kolb's Model (Kolb, 1984), the Myers-Briggs Type Indicator (Myers & McCaulley, 1986), and the Grasha-Reichmann Learning Styles Scales (Grasha, 1996). Among these various instruments, Grasha-Reichmann's Learning Style Scales (SLSS) is distinguished by its behavioral approach (Montgomery & Groat, 1998). In other words, SLSS is geared towards assessing students' responses to class activities and their opinions towards teachers and peers rather than assessing their general personality traits, as some of the other measures are designed to do.

Grasha (1996) defined learning styles as "personal qualities that influence a student's ability to acquire information, to interact with peers and the teachers, and otherwise participate in learning experiences" (p. 41). Back in 1974, Reichmann and Grasha developed a new instrument to assess student's learning style called the Grasha-Reichmann Student Learning Style Scales (SLSS). They defined six types of learners: independent,

dependent, collaborative, competitive, participant, and avoidant. Grasha (1996) indicated that some students may very well possess more than one learning style; however, in general most people seem to exhibit a primary pattern of learning behavior or style of learning.

The independent–dependent group measures the degree to which students desire to work independently or rely on their professors and peers. The collaborative–competitive group measures the degrees of competitiveness and collaboration of students when interacting with their professors and peers. The participant–avoidant group measures students' willingness to be involved in classroom activities, their responses to classroom routine, and their views toward learning. The SLSS overall was designed to help educators identify students' views toward learning, views of professors and other students, and their attitudes and responses toward classroom activities.

A careful literature review reveals that though there have been many past studies on learning styles, overall the findings are not conclusive. In fact there seem to be more questions than answers. For instance, is there a meaningful relationship between a student's learning style and her academic performance? What about learning styles and gender? In the following pages, we will briefly present and discuss some of the past findings in the literature regarding college students' learning styles.

Learning Styles and Gender

Whereas Gray's (1992) bestselling book *Men are from Mars, Women are from Venus* may have influenced people's perceptions of gender differences in the popular media, scientific research has also made great progress in brain study in recent decades. It has been reported that men's brains are approximately 8% larger than women's for both left and right hemispheres (Eliez et al., 2001). Although it is unclear whether the size difference of the brain affects men and women's intelligence, it is speculated that the differences of the brain may have an effect on their learning styles (Leamnson, 2010). Many studies have shown that the learning styles of male and female college students seem to differ (Alumran, 2008; Keri, 2002; Philbin, Meier, Huffman, & Boverie, 1995; Sim & Sim, 1995). For example, it has been reported that women are more retentive, detail-oriented, and they prefer organizing course materials and their notes in a neat and orderly fashion; whereas men are more imaginary, innovative, and are good at understanding abstract concepts (Alumran 2008; Liu, 2005). On the other hand, others (Sims & Sims, 1995) argued that there are simply not enough studies on learning styles and gender in higher education to draw a definitive conclusion. Overall, this area remains mostly untapped today and much more empirical research needs to be done before a conclusion can be drawn.

Learning Styles and GPA

Similar to learning styles and gender, there is a paucity of literature focusing on learning style and academic performance as indicated by GPA. Among those who investigated this relationship, there is a lack of consistency in results and therefore no definitive conclusion can be drawn at this time. For example, Aragon, Johnson, and Shaik (2000) found that a combination of increased participation and decreased avoidance is a predictor of higher academic performance. From a different perspective, Reece and Dunn (2008) found that the students with the highest GPAs prefer to study easy materials in the late morning or in the afternoon and difficult materials in the evening; whereas the students with midrange GPAs prefer to study in the daylight, and the students with lowest GPAs prefer to study during the night with music on. Hargrove, Wheatland, Ding, and Brown (2008) reported a significant difference in students' GPAs with different learning styles among engineering majors. Specifically, students with the highest GPAs are relatively unemotional. They are good at understanding abstract concepts and prefer to work with things than with people. Students with the lowest GPAs are more imaginary, emotional, and good at understanding concrete concepts. They perform better in brainstorming and prefer working with people. Liu (2005) found that Chinese students with independent learning style were more likely to have better grades in Chinese language and literature, but no relationship with grades in other academic subjects. However, other researchers have found no relationship between learning styles and GPA altogether. Veenman, Prins, and Verheij (2003) for example, posited that there is no correlation between students' learning styles and their GPAs in their investigation. Generally speaking, it seems these mixed results indicate that there is a need for further systematic studies.

Learning Styles and Academic Discipline

Past research indicates that students in different disciplines exhibit different learning styles. Pinto, Geiger, and Boyle (1994) found that nonbusiness majors tend to demonstrate applied learning preferences after spending more time in school. Matthews (1994) found social sciences majors prefer to work with languages and ideas; whereas students majoring in mathematics or sciences tend to be applied learners who welcome and excel in real-life learning situations. Similarly, Yuen and Lee (1994) also found differences in learning styles among students majoring in humanities and social sciences, basic sciences, computer science, medicine, law, business administration, and architecture in Singapore. For example, they reported that humanities and social sciences students enjoy relating to people and coming up with ideas more so than other majors. These students tend to emphasize concrete experiences and think deeply. On the other hand, science and law students tend to be more structured and organized and they prefer to think rather than to act.

Learning Styles and Academic Ranks

Hartnett (1973) argued that lower level students such as freshmen, are more participatory and less independent; whereas upper level students such as seniors are more experienced and tend to have acquired more independent learning styles. Pinto and colleagues (1994) examined the learning styles of 178 college students, and concluded that students tend to change learning styles over their college career. Specifically, first and second year students are more malleable and are more likely to change their learning styles than third and fourth year students. On the other hand, Busato, Prins, Elshout, and Hamaker (1998) concluded, from a longitudinal study to investigate the change of learning styles among students during their stay at the university, that there was no significant change of learning styles over these students' college careers. Again, it seems the findings in this area are anything but conclusive.

Learning Styles and Culture

While much research concerning learning styles has been conducted in the Western countries, especially the US, few empirical studies have been done in the non-Western countries such as China. In China, it is thought that there has been more focus on learning strategies rather than learning styles (Liu, 2005). As the practice of teaching and learning is steeped in cultural traditions of a particular country or region (Harbon, 2008), we believe a brief review of the main philosophical and ideological principles and thoughts in the West and East might be helpful.

Two very different approaches to teaching and learning seem to emerge. Socrates, whose influence still dominates western thinking in many educational areas, encouraged students to engage in critical thinking and questioning common knowledge (Shiraev & Levy, 2010). Therefore, a teacher's job is akin to a facilitator. On the contrary, the Chinese philosopher and educator Confucius, whose ideology has strongly influenced east Asian cultures, promoted the virtue of acquiring knowledge based on respect toward educators and accepting what is taught without independent thinking or questioning (Shiraev & Levy, 2010). So a teacher's main job is to transmit knowledge and information to students.

As culture shapes our beliefs, views and behavioral patterns, it is expected that these two different traditions in thinking have also influenced the way of teaching and learning. In cross-cultural studies, the cultural dimension of individualism and collectivism has been widely used as a theoretical framework to compare behaviors of people in Western and non-Western countries (Shiraev & Levy, 2010). In general, American culture is identified as largely individualistic, where the ties between individuals are loose, and people are expected to take care of themselves (Hofstede, 1991). Chinese culture on the other hand, is considered largely collectivistic, where people tend to consider themselves as members of a group and are more willing to sacrifice their interests for the group's needs (Morris, Davis, & Allen, 1994).

Within an individualistic framework, students are expected to participate in class activities enthusiastically because it is a good opportunity for them to express their opinions and share their independent thoughts with others. Each individual is encouraged to be unique and teachers are supposed to see each student as an independent entity. Standing out is rewarded and thus positively reinforced, as illustrated in the English proverb "Squeaky wheels get the grease." Uniqueness is encouraged and embraced by the society because

it goes with the free enterprising spirit of the individualistic culture.

In a collectivistic context however, students are encouraged to conform to the norm, and discouraged to be unique. Maintaining group harmony is considered more important than expressing personal uniqueness. Standing out is chastised and thus discouraged, as illustrated in the Chinese and Japanese popular proverb "The nail that sticks out gets hammered down." People are generally encouraged to go with the flow and not make waves. This behavioral pattern is conducive to the type of traditional learning that is heavily reliant on repetition and rote memorization. A good example of this type of traditional learning is the Imperial Test System to select government officials (known as "mandarins") that was prevalent during several dynasties in China. Biggs (1991) has labeled the kind of learning that is characterized by pure repetition and rote memorization as surface learning, which does not involve students' critical thinking or independent judgment.

In general, educators have observed that American students tend to be more actively involved in class activities and more likely to speak up in class than East Asian students (Markus & Kitayama, 1991). Such differences are also reflected in the classroom settings and learning and teaching structures (Cortazzi & Jin, 2001) that encourage or discourage an interactive atmosphere in the classroom.

Current Study

The main purpose of the current study was to investigate possible differences in learning styles between American and Chinese college students. Based on our review of the past research findings and literature on cultural influences on teaching and learning, the following six hypotheses were generated:

1. Different cultures influence students' learning styles. Specifically, there would be differences on all the categories of learning styles between the American and Chinese participants.
2. American students would be more likely to score higher on independent, competitive and participatory subscales than Chinese students, whereas Chinese students would be more likely to score higher on dependent, collaborative and avoidant categories.
3. Male and female students would differ in learning styles in both countries. Specifically, men would score higher on independent, competitive and avoidant styles than women who would score higher on dependent, collaborative, and participant learning styles.
4. There would be differences in learning styles for both groups among students with high, medium and low GPAs.
5. There would be differences in learning styles for both groups among students in different academic disciplines.
6. There would be differences in learning styles for both groups among students at different academic ranks. Specifically, first and second year students would tend to be more dependent whereas the juniors and seniors would be more independent in their studies.

METHOD

Participant

A total of 511 college students participated in this study, 274 (54%) from a regional university in the southeastern part of the United States and 237 (46%) from a major comprehensive university from the northeastern part of China. Of the sample, 42% are male and 51% female (7% unknown). The mean age for the US sample is 24 and 20 for the Chinese counterparts. Their academic majors cover a wide range of disciplines. A more detailed description of their demographic characteristics is presented in Table 1.

Instrument

The Grasha-Reichmann Student Learning Style Scale (SLSS) (1996) was used as the main instrument for the current study. Designed to gauge how college students view their learning, the scale has 60 statements, encompassing six identified learning styles: independent, dependent, competitive, collaborative, participant and

Table 1
Demographic Information of Participants

	US (n=274)	China (n=237)
Gender		
Male	111	104
Female	138	124
Unknown	25	9
Mean age	24	20
Academic Rank		
Freshmen	2	173
Sophomore	9	43
Junior	214	13
Senior	43	0
Unknown	6	8

Table 2
Means and Standard Deviations of the SLSS for US and Chinese Students

Learning styles	Location	m (sd)	t
Independent*	US	3.48 (.51)	-5.6
	China	3.77 (.48)	
Dependent*	US	3.77 (.48)	10.57
	China	3.29 (.49)	
Competitive	US	2.6 (.65)	.648
	China	2.65 (.54)	
Collaborative**	US	3.55 (.72)	-2.29
	China	3.71 (.59)	
Participant*	US	3.74 (.67)	4.11
	China	3.49 (.58)	
Avoidant	US	2.78 (.71)	1.17
	China	2.77 (.59)	

* p<.01 **p<.05

avoidant. Each of these six categories has ten statements. Here are some sample statements for each category: I prefer to work by myself on assignments in my course (independent). I like it whenever teachers state it clearly what is required and expected (dependent). To do well, it is necessary to compete with other students for the teacher's attention (competitive). Working with other students on class activities is something I really enjoy doing (collaborative). I do whatever is asked of me to learn the contents of my classes (participant). I often daydream in my classes (avoidant). The responses were measured on a Likert scale: 1 = strongly disagree to 5 = strongly agree. For the Chinese sample, the questionnaire was translated from English into Chinese using the back translation method, and tested with a small group of Chinese students before being administered for this study.

This scale has been used by other researchers and has shown good reliability and validity. In the current study, the average Cronbach's alphas for the six categories were .70 and .63 respectively for the American group and the Chinese group. A few items on demographic characteristics were also collected: age, sex, self-reported GPA, academic rank, and major of study.

Procedure

Data collection procedure was similar in the United States and China. Convenience samples were utilized at both universities. The researchers distributed the survey questionnaire to students in their classes, and instructed students that they could fill out the survey either in the classroom or do it later at their conveniences. They were told to put completed surveys in envelops provided outside in the hallway. Most students returned the completed surveys within a day or two. Participation was voluntary and the responses were anonymous as no name or other personally identifiable information was collected.

RESULTS

We examined the results in the order of each of our previously stated hypotheses. The means and standard deviations of each of the six categories of learning styles for both groups are presented in Table 2.

Hypothesis 1 was only partially supported because the American and Chinese students

showed significant differences only in four out of six learning styles: independence, dependence, collaborative and participant, whereas no significant difference was shown on competitive and avoidant learning styles. Hypothesis 2 was also partially supported. It turns out that the Chinese participants scored significantly higher than their US counterparts on independent and collaborative categories whereas the American students scored significantly higher on dependent and participant categories. There are no differences in the other learning styles.

We then examined each sample individually, breaking it down by gender. Results are presented in Table 3 and Table 4.

Hypothesis 3 was partially supported. The gender differences shown in the results are somewhat similar between the two groups. In the US sample, men scored higher on the avoidant category than the women, but the women scored higher on both dependent and participant styles. In the Chinese sample, the pattern is similar where women also scored higher on dependent and participant styles. These results are consistent with the direction that was predicted in Hypothesis 3. No differences were found on the other categories.

Next we examined possible relationships between our participants' learning styles and their demographic characteristics. Hypothesis 4 was partially supported. Results show that for the US sample, there is a significant correlation between independent learning style and self-reported GPA (F=3.3, p<.Ø5), indicating that those American students who report the independent type of learning pattern are more likely to report higher GPAs than students with other types of learning styles. In the Chinese sample, it was found

Table 3
Means and Standard Deviations of the SLSS for US Sample, by Gender

Learning styles	Gender	m(sd)	t
Independent	Male	3.56 (.52)	1.51
	Female	3.42 (.48)	
Dependent*	Male	3.68 (.54)	-3.11
	Female	3.84 (.44)	
Competitive	Male	2.62 (.59)	.6Ø3
	Female	2.63 (.66)	
Collaborative	Male	3.57 (.71)	-.116
	Female	3.55 (.71)	
Participant**	Male	3.48 (.71)	-4.33
	Female	3.9Ø (.6)	
Avoidant*	Male	3.Ø5 (.74)	2.64
	Female	2.62 (.64)	

* p<.Ø5; ** p<.Ø1

Table 4
Means and Standard Deviations of the SLSS for Chinese Sample, by Gender

Learning styles	Gender	m(sd)	t
Independent	Male	3.83 (.47)	.686
	Female	3.74 (.xx)	
Dependent*	Male	3.22 (.51)	-2.19
	Female	3.34 (.46)	
Competitive	Male	2.64 (.56)	-.642
	Female	2.67 (.52)	
Collaborative	Male	3.73 (.61)	-.1Ø5
	Female	3.7 (.58)	
Participant*	Male	3.4 (.61)	-2.57
	Female	3.57 (.53)	
Avoidant	Male	2.82 (.53)	.749
	Female	2.74 (.59)	

* p<.Ø5

that there is a positive relationship between self-reported GPA and competitive (F=3.5, p<.05) and participant (F=3.05, p<.05) learning styles, suggesting that those Chinese students who are more competitive and more participant tend to report higher GPAs than students with other types of learning styles.

Hypotheses 5 and 6 were not supported as the results show no significant differences between learning styles and academic disciplines or ranks for either group.

DISCUSSION

Examination of the results clearly shows that the findings only partially support our earlier hypotheses; in fact, some findings are in the opposite direction of our prediction. Based on cultural orientation dichotomy of individualism and collectivism, it was predicted that American students would be more likely to have independent, competitive and avoidant learning styles than the Chinese. However, the findings indicate almost the opposite: the Chinese students turned out to be more likely than their American counterparts to report the independent style. At first glance, it seems puzzling due to the collectivistic nature of the Chinese culture: aren't Chinese people supposed to be more interdependent of one another and less individualistic? The answer may not be a simple one and we may need to look closely at the contextual factors of both groups of participants. We believe that students' self-reported learning styles are shaped by the environment factors. For example, past and experiences may have influenced the learning styles of both participant groups.

If we look carefully at the contemporary Chinese society, we can appreciate how competitive its economy has become in the global world, and the tremendous pressure it puts on the educational system to produce young educated people competent enough to contribute to the growth of the country. Another factor is related to the national only-child reality. A majority of the students are from one-child families. Without siblings, they are used to doing things by themselves and may have developed a more independent behavioral pattern as a result (Liu, 2005). Also, being the only child in the family, their parents have invested heavily in their education since they were born hoping their child would succeed in this competitive world. The reality is that this generation of students grew up in a highly pressurized environment where they were always taught to excel in school in order to have a successful life. They have had to compete for the best kindergarten, elementary, middle and high schools, and then the top universities. The university where the Chinese participants were attending is one of the nationally recognized leading comprehensive higher education institutes that have high admission requirements. These students may very well have internalized the individualistic notion of independence and competitiveness, as least as far as studying is concerned.

This speculation is consistent with Zhang's (2000) position that Chinese people's collectivism is largely confined to the domain of the family, and in general does not extend beyond that. Once outside family, according to Zhang (2000), Chinese people in fact are very independent and competitive. Growing up in a highly competitive environment, it is not surprising if the students exhibit more independent and individualistic characteristics rather than collectivistic tendency, as traditionally thought.

On contrary, the college where the US participants were attending is a regional university that does not have as stringent entrance requirements, and its students haven't had the highly pressurized experience of competing for the top schools their entire life. This may partially account for the findings in the independent/dependent learning style category. It is reasonable to speculate that if the college were a more academically competitive school, the findings on this aspect may very well turn out differently.

Past research has also indicated that Asian students tend to prefer working on their own to solve problems rather than working in groups, whereas non-Asian American students prefer to work in groups (Hall, 2010). Similar findings are reported by Reid (1987) in overseas Chinese students. Liu (2005) also found in her study that Chinese college students of English preferred working individually rather than in a group. This could simply be a preference that by itself is not complex, but if examined a little more deeply, it may be related to culture and experiences.

We are not suggesting that Chinese students are completely individualistic because the findings also show they scored higher on collaborative style than the US students. It may seem contradictory to the finding on independent style; how-

ever, it may not be. Chinese culture has always emphasizes social and group harmony, and it is instilled in children as a virtue in their socialization. So it is not surprising that while being independent in their overall study habits, the Chinese students may also exhibit some collaborative traits in doing their school work in the classroom. It is likely that it all depends on the subject matter, some being more conducive to group work than others. On the other hand, we believe it is also possible that the students simply picked the answers they thought they "should" do in the collaborative category due to social desirability effect.

The findings that American students are more likely to report the dependent learning style than their Chinese counterparts may at first seem surprising, but in fact they are quite consistent with previous research. American teachers in general are encouraged to give clear and explicit instructions on what the goals and expectations are for the class and how to achieve them (Stronge, Tucker, & Hindman, 2004). These instructions are usually stated in the syllabi as well as given orally in class. Students have learned to depend on these clearly stated instructions for successful completion of the course. In colleges, clear cut instructions from the instructors including grading rubrics are deemed necessary and preferable and students expect the professors to do so in the beginning of the course and follow the syllabus throughout the semester. This structure is something students have come to rely on in their learning. From our personal experiences, the syllabus serves a somewhat different purpose in China. A few years ago the first two authors went to teach in a Chinese university for a semester. The first thing we did was to hand out a detailed syllabus in our respective classes as we normally do here in the US. However, the Chinese students were very surprised at how detailed our syllabi were, including plans for each class period, exam dates, assignment due dates, rubrics, among others. It seemed that their regular professors did not ordinarily inform the class of a detailed course plan for the semester. The syllabus was more of a rough timetable for the instructor rather than for students, and in some cases the instructor did not hand out a syllabus at all (personal communication).

The findings that American students are more likely to report the participant styles are also pretty consistent with previous research that examines US educational practices. Students have been shown to learn more and better when they are actively involved in the learning process (Davis, 1993). Active participation in class has been linked to greater student academic achievement in the class (Langlois, 2001). Educators in the US are strongly encouraged to explore active learning techniques to bring students into the learning process as opposed to the traditional lecturing format in the classroom (Champions of Active Learning, 2004). In light of these findings, the current results on participant style are consistent with the standard educational system the US students are accustomed to, and by the time they reach college, they are well versed in this practice.

In the area of possible gender differences, the current findings show that for both US and Chinese college students in the study, women were more likely to report dependent and participant learning styles than men. These results are in general consistent with the notion that women tend to be more detail oriented and participatory than men. However, a definitive conclusion can't be drawn until more empirical research is done on this topic.

Regarding learning styles and GPA, the current findings show that independent learning style is positively related to higher GPAs for US students, but no relationships are found for other types of styles. For Chinese students, competitive and participant styles both are positively correlated with higher GPAs. We are not able to assess the directionality of these relationships; however, it seems that certain learning styles are more conducive to higher academic grades than others. Again, more empirical research is needed before we can draw any conclusions.

No relationships are found in the current study between learning styles and academic disciplines or ranks. We speculate if our sample size were larger with enough participants in each category of academic disciplines and ranks, the data might have shown some meaningful results.

LIMITATIONS AND CONCLUSION

The current study has several methodological limitations.

First, sample compatibility is less than ideal. The two universities are of different levels of academic vigor, and therefore the intensity of competitive-

ness is very different which may have affected students' self-reported learning styles. As mentioned before, we believe students' learning styles are shaped by the environment as well as their past and current educational experiences. Further, the participants from the Chinese sample are overall younger than the US participants. Age differences of the two groups may have also influenced the findings.

Second, what is the most appropriate measure of learning styles for college students? There is no definitive answer. We chose SLSS because it focuses on the behavioral responses rather than traits. However, whereas the Cronbach's alpha for the US group is acceptable, the internal reliability for the Chinese sample is relatively lower than hoped for. This raises the question of how well the SLSS measurement worked with our Chinese sample.

Third, although it is believed that most students have a primary type of learning style, it would have been interesting to combine primary and secondary styles, and see what kind of influence that would have on the results.

Despite the limitations of the study though, overall, we hope the current findings will add some useful information to the literature on college students' learning styles, both in the US and China. Future cross-cultural studies should choose a larger and more compatible sample and work with multiple measures. Further, the cultural dimensions of learning styles need to be examined more closely.

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Designerly Ways of Teaching and Learning: A Course Structure for Interaction Design

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ABSTRACT

Society's use of increasingly complex information technology is, in a long-term perspective, shaped by the way we train our future designers and developers of information systems. By preparing students for practice on the field, in complex use-contexts, we aim to help student's bridge theory and practice, thereby helping them incorporate procedural knowledge and reflective practice in their skill repertoire. This paper presents a new course structure founded on active, contextual, and peer-based formative learning. Based on student and teacher reflections from two implementations of a course in Interaction Design, we find that our approach enhances the students' understanding, and assimilation, of the reflective aspect of interaction design practice.

INTRODUCTION

As Information Systems (IS) – driven by mobile, web, and other technologies – are becoming increasingly integrated in everyday life for many people around the world, the question of how IS academic research and practice can contribute to an emerging digitally interactive society arises. One response to this question is to consider that design, and use, of information technology in society starts in the educational settings where IS design and development are taught. Arguably, this is where the long-term trajectory of future societal IS design and development is set in motion. It is clear that design-related education tend to lack structured ways to help students embrace the core nature of design (Marrin, 2005; Schön, 1984). Design-oriented education needs to resonate with not only declarative academic requirements, but also the procedural craftsmanship and reflective qualities of design practice (Sas, 2006; Wroblewski, 1991).

The question guiding the work presented in this paper is thus: How can we design an effective curriculum suited for teaching and learning information systems design? The contribution is a course framework based on active, contextual, and peer-based formative learning that adheres to designerly ways of thinking (Stolterman, 2008). The framework consists of new structure and content for the course Interaction Design (7.5 credits) given three times per year at undergraduate level. We have given this course according to the new curriculum twice, and continuously performed qualitative evaluations based on written student and teacher reflection essays. We present our initial findings, and discuss their effects on learning and teaching experiences reported in the reflection essays.

The paper is structured as follows: In Section 2 we briefly outline the characteristics of design knowledge and designerly ways of think and act; and the requirements imposed on any education-

al setting claiming to teach it. We also introduce a theoretical reference frame that enables us to investigate our empirical data and answering our research question. In Section 3 the framework is described, and key differences from the previous course structure are highlighted. In Section 4 we present the empirical study and analysis. We conclude with a discussion of the findings in Section 5.

DESIGN KNOWLEDGE AND LEARNING

Design research has provided the community with several methods and academic ways of framing design problems. Even though teaching and research in IS has been reported as being in a coherent and healthy state (Avison et al., 2001), several scholars (e.g. Stolterman, 2008; Wang, 2010) have recently noted a lack in design-oriented education. Specifically, institutions face a challenge of introducing students to *designerly* ways of knowing, and teaching the craftsmanship aspect of the discipline based in a practice in complex contexts.

There are several ways and nuances to characterizing "design knowledge" (Cross, 2001; Schön, 1984), and the epistemological debate on what underlies design research, practice, and education is far from closed. Indeed, in a larger sense, various design disciplines struggle with how to articulate what design knowledge really is, and exactly how it can contribute. This is, however, not a design theoretical paper. Rather, our contribution lies in aiding IS students to bridge theory and practice, and thereby helping students improve interaction design practice.

The purpose of this section is to emphasize two important qualities of interaction design that we have seen students struggle with previously, and frame our approach in relation to learning perspectives and educational challenges facing instructors teaching Interaction Design.

Complexity and Context-of-Use

Increasingly, the interaction patterns and touch point integration of IS use over several media and contexts grow more complex (as can be seen in the recent trend towards responsive design, and deployment of services and system versions on versatile platforms). For members of society to be able to utilize the massive opportunities of digital interactions seamlessly over various platforms, in a myriad of contexts, they need well-designed systems that embrace complexity, but in a non-complicated way. The ability to handle complex design situations is part of a *designerly way* of thinking (Cross, 2001; Buxton 2007; Stolterman, 2008), and lies at the core of being a design practitioner.

As has been argued by Stolterman (2008), traditional HCI design research has relied on science rhetoric when developing new design methods and tools, sometimes at the expense of being guided by the core nature of design practice. And since research and education are intertwined in the university setting it is only natural the academic perspective becomes the focal point in the design education. Interaction design of IS is about creating a desired, and specific, outcome – and is always aiming at a specific context-of-use. A core task for educators in Interaction Design is thus to create and provide learning environments where students can begin to understand how design complexity and context-of-use relate to each other; which leads to the notion of design as practice.

Practice

Interaction and User Experience Designers are expected to work in the field, carrying out contextual observation and perform interviews as part of task analysis, user goal detection, etc. Even though the practical nature of design has long been acknowledged (e.g. Cross, 1982; 2001; Buxton, 2007; Stolterman, 2008), efficient and effective teaching methods for teaching contextual design practice have not been widely adopted in university curricula. Furthermore, criticisms have been raised against a too abstract and theoretical focus on the interaction design methods developed in academia (Stolterman, 2008; Rogers, 2004). Students struggle with the task of bridging HCI theory with design practice. A typical way for educational institutions to deal with the theory-practice bridging is to let students carry out "practical projects" during courses, expecting them to put theory into practice on their own, with theoretical support from (the comfort of) the university lecture halls. However, in traditional HCI-based academia we as teachers sometimes forget (or perhaps do not even realize) that it is not enough to *talk about*

field work in class. For example, the notion of *praxis chock* (Nilsson, 2008) has been considered in educational ventures of other fields, such as various medical professions, but is rare in the field of IS design and development. The typical way of learning the practice is through design projects, where the work is mostly carried out outside of class, with limited contextual guidance from instructors (Sas, 2006).

In summary: Just as a designer is expected to work "in the wild", it is reasonable to think that the education itself should take place in the complex use-contexts students are expected to design for.

Related Theoretical Learning Perspectives

The process of learning has through history been researched and theorized from a wide range of perspectives (James, 1893; Ryle, 1949, Vygotsky, 1978; Leinhardt, McCarthy Young & Merriman, 1995) and can for instance be found in literature for interaction design (Sharp, Rogers & Preece, 2011) or in literature for teaching in higher education (Biggs, 2003). While it is possible to approach the complex learning situation at hand from several theoretical angles, our contribution is based upon three theoretical frameworks on learning and teaching. The theoretical frameworks were chosen based on their suitability to be an appropriate tool to advance the understanding and resolution of our research question. They are:

1. *Declarative and Procedural knowledge*. This division allows us characterize the difference between two basic knowledge types required for craftsmanship as well as academic and scientific work in design.
2. *Zone of proximal development* (Vygotsky, 1978), which allows us to reason about progressing through a developmental trajectory.
3. *Reflection-on-action* allows us to relate to the theory about the possibility to reflect upon recent and occurring problem situations.

Declarative and Procedural Knowledge

Ryle (1949) points out a distinct difference between the knowledge of "how" and knowing "that" – where "how" is the knowledge learned by practice, rather than by plain theory ("that"). *Procedural* knowledge is often described as "learned by practice" (Leinhardt et al. (1995); Anderson & Lebiere, 1998; Biggs, 2003; Sas, 2006). The knowledge of "that" – or factual knowledge (Anderson & Lebiere, 1998) – is described as *declarative* knowledge (Leinhardt et al.,1995; Biggs, 2003; Sas, 2006). Leinhardt et al. (1995) also characterize declarative knowledge as the professional knowledge acquired in academia. Furthermore, the authors discuss how "*university educators and researchers have tended to ignore or devalue the uncodified knowledge of practice*" (Leinhardt et al., 1995, p 403).

A design-oriented education should acknowledge that the core of the discipline lies in developing both declarative and procedural knowledge (Wang, 2010; Sas 2006). Therefore, we find this distinction useful to frame and examine the learning effects, and teaching aspects, of any design-oriented course.

Zone of Proximal Developments

The zone of proximal development (ZPD) is defined as "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance, or in collaboration with more capable peers" (Vygotsky, 1978, p 86).

The motivation to turn to ZPD is based on previous experience with students that have struggled with crossing the hurdles of performing interviews and contextual observation in practice; even though they can articulate the benefits from a declarative perspective. Our hypothesis is that (the procedural aspects of) this activity lies outside most students' ZPD, and that they can benefit from appropriate assistance and guiding ("scaffolding") in order to be able to learn the task.

Reflection-on-Action

Brockbank and McGill (2007) discuss reflective practice based on Schön's work (Schön, 1984),

but in a student context. The authors point out the importance of the students' capability to individually reflect upon their actions in a specific situation. Cowan (1998) talks about reflection in a student context and introduces the term "reflection-on-action". This is defined as the reflection students make based on past learning experiences, which they analyze, summarize and make general conclusions about. This can then be used in future situations. While reflection-on-action indeed is crucial in most learning situations, the reflective aspect of design lies in the very core of the discipline (Schön, 1984). Transfering, and maintaining, reflective capacity beyond the educational setting into a design profession is therefore imperative.

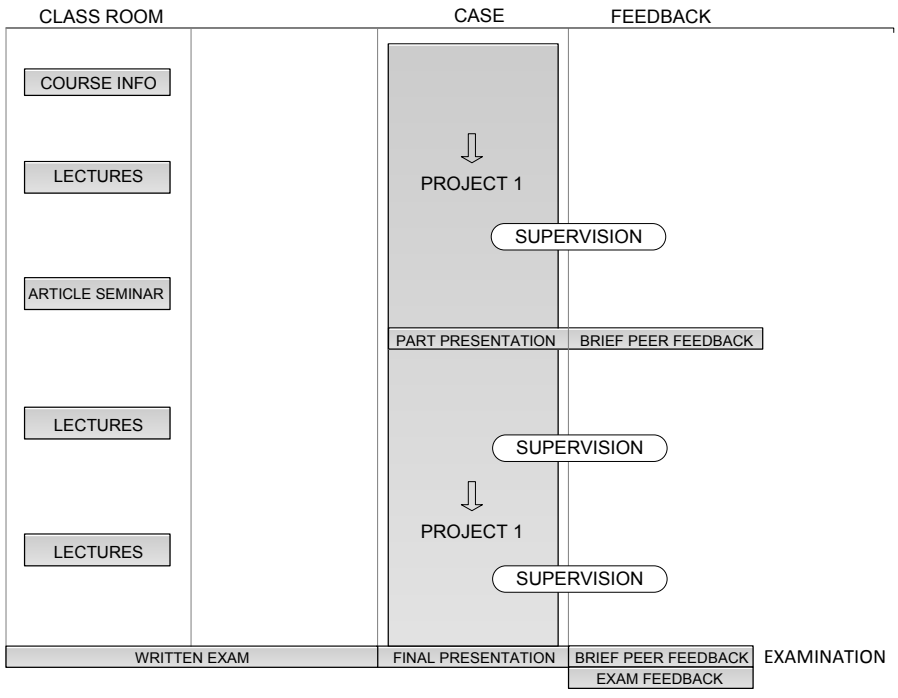
A FRAMEWORK FOR TEACHING INTERACTION DESIGN

This section covers our main contribution: a course framework for teaching interaction design as both an academic discipline, as well as a craft, preparing students for a design profession. For reference, we start with a brief outline of the previous structure and content (3.1), before moving on to the key differences in the new course with regards to both structure and content (3.2-3.9).

Background: The Previous Course Structure

Figure 1 shows the previous course structure. It consisted of traditional classroom lectures, a seminar, one written exam and a design project performed in groups. The group projects were carried out in rather isolated manners. Student groups chose their own systems to evaluate and re-design, with little or no between-group interaction. In the middle of the course, students presented their "half-way status" and had the opportunity to receive teacher as well as peer feedback. The course examination at the end of the course consisted of a written exam and a project presentation and report where teachers and students had the opportunity to provide feedback.

Figure 1
Old course structure, split up in Classroom activities, Design Project activities, and Feedback opportunities.



The New Course Structure at a Glance

Chronologically, the new course structure is segmented into three parts, as shown in Figure 2. These parts correspond to the design phases that students work through in their practical design project. Even though previous version of the course also included a practical design project, the structure, theme, interactions in and between, and implementation of, the projects have been modified significantly. First, the project is actually divided into three sub-projects, with clear deliverables that correspond to the generic design process phases of Research and insight; Conceptualizing and prototyping; and Evaluation and improvement suggestions. Second, common theme ties all the design projects together and makes it possible to share collected research data between projects, and allows for field activities where instructor and students work together in a use context that is relevant for all project groups.

Instead of one exam at the end of the course (Figure 1), we have split the written exam into three parts (Figure 2). These smaller chunks of exam assessment provide three opportunities for focused teacher feedback to the students spread out over the course, instead of once (after the course has finished, and covering all aspects of the course in one sitting) as in most traditional course setups. Some topics previously covered in lectures (with an active teacher, and passive students) have transformed into workshops, where the students are active and the teachers re-active.

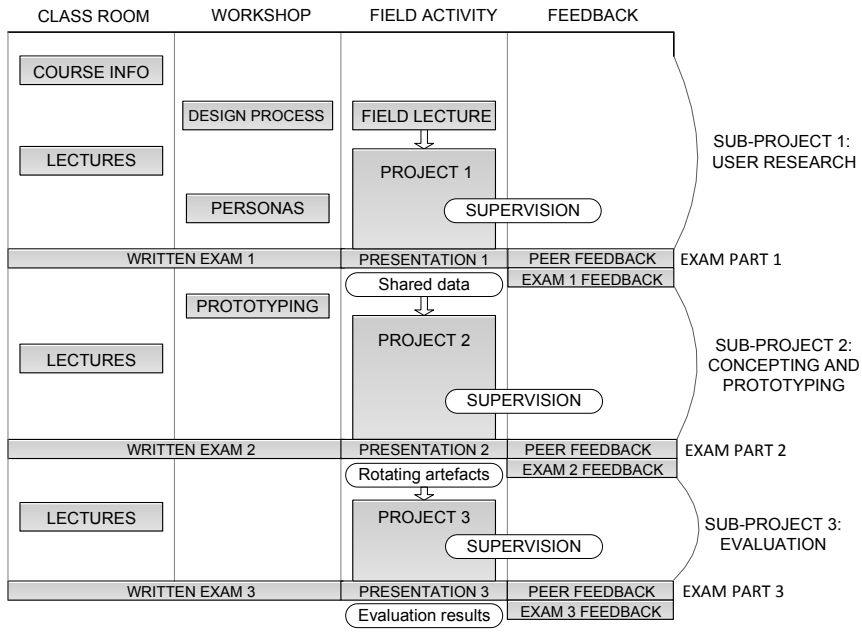
In the following, we present a more detailed account of the revised course components.

Theme: Providing a Common Course Context

All design efforts in the course target a context that is common to all projects, and some lectures. The course is currently thematically focused on the public City Library. This means that all student projects are investigating and designing for user experiences connected to the same environment. The theme is introduced in the course introduction, and reinforced by a "field lecture", given on-site at the library.

The purpose of this field lecture is to guide students in the art of observation. An experienced

Figure 2
New course structure, split up in classroom, workshop, field, and feedback activities.



instructor helps students identify systems and interactions while touring the library localities. By relating observation techniques to the course literature, and showing students how to actually do it, the students get a gentler introduction to "observation in the wild", and can ask situated questions that most likely would not pop up if they were to hear about it in a classroom.

Since the library is a public space, we divide the class into groups of less than eight students at a time in order to not disturb. Due to this arrangement we can move smoothly through the library. It does, however, require several sessions in sequence if the course consists of many students.

This is student-driven, active shaping of the learning environment, since students influence what services and artifacts to look at during the tour. Sometimes the interest is centered around a very specific interaction, such as the loaning kiosk screen, or the search interface on the public computers; and sometimes a more holistic question is pondered, such as how do people actually get inspired to find new books while browsing the library, or what accessibility support exists for blind visitors, etc.

Workshops

The original lecture on the design process is replaced by a workshop where students spend two hours moving through a complete design process. The workshop starts with students taking turns interviewing each other about a given design topic: designing a digital support for travel and vacation. Based on the findings in the interviews, students then rapidly sketching several design directions (at least five design concepts) individually, before presenting and getting feedback from peer. The second half of the workshop consists of reflecting on the feedback, choosing a concept to flesh out, prototyping it on paper, and evaluating the prototype with the peer (mimicking end-user testing). This concept has successfully been used at Stanford's Design School (Stanford, 2010).

We also provide one workshop on persona generation, where the students spend the time slot building personas based on interviews they carry out with each other. Throughout, students are guided when needed by the instructor in a walking-around fashion.

Finally, the third workshop is about prototyping in different media using various techniques. Students bring empirical data from sub-project 1, personas from Workshop 2, and their initial design ideas. Together with a lecturer design solutions are created in different ways based on different prototype techniques. The lecturer acts more as a design tutor than a lecturer in this workshop – showing, helping and creating together with students.

Aligning Subprojects to Design Process

As the students have gone through a complete micro design process in the first Workshop (see Section 3.4, and Figure 1), they have received a practically grounded overview of the steps usually found in a design project. These steps are mapped to the three sub-projects, whose deliverables span (1) actionable research insights, (2) interactive prototypes of services or products, and (3) evaluation protocols and suggestions for design refinements.

Sub-project 1 is focused on user research, where students return to the same context introduced by the instructor in the beginning of the course. In our case, the context is the City Library (see Section 3.3). Armed with the experience of being guided through that environment, and having discussed observation techniques with a senior designer, as well as the peer interview sessions in workshops 1 and 2, students carry out observations and interviews in "the wild", in a real and relevant environment that feeds directly into their projects.

Sub-project 2 is a generative process focused on designing solutions based on the problems that have been identified in sub-project 1. All groups design interactive prototypes based on the empirical data that has been collected.

Sub-project 3 concerns evaluation of the prototypes created in sub-project 3. Typically, this consists of user testing, and standard usability inspection methods such as heuristic evaluation.

Collectively Owned Research Data

The outcomes of sub-projects 1 and 2 have to fulfill the requirement of "external use". That is, it has to be in a state that could be useful for

another team. After presenting sub project 1 the ownership of all groups' research data and findings are posted on the course website for all other project groups to use.

We did this for two main reasons: first, it requires the groups to package and present the material in an explicit and actionable manner. Second, it provides the teams with the possibility to enrich their research with additional material from their peers, thereby enhancing the design decision base. By having all projects centered on a common theme, a project groups' data and findings have a high likelihood of being useful to other project groups.

Presentation Volume

Instead of a halfway status report, we make a point of delivering at three clearly defined points in time (see Figure 2). Design and research findings are the topic of the first presentation. Here, the students' task is to present their findings in a manner that can be utilized directly in the design process of all other teams, should they be so inclined (Section 3.6). The second focus in on presenting a finished prototype based on the research data. This requires another type of presentation technique compared to a research finding presentation. Third, the prototypes resulting from sub project 2 are rotated, so that teams evaluate the usability and user experience of another team's prototype. Presenting evaluation results and giving suggestions for improvements is the topic of the third presentation slot.

This approach gives students training in presenting three different kinds of contributions; it also allows students to follow the other teams' progress closely, and relate to their own throughout the course.

Tightening the Exam Feedback Loops

By splitting examination and project into three parts, students gain feedback through three stages instead of one as in latter versions of the course. By having examination and project presentations in three parts, students can check and reconcile their knowledge in relation to the course. The advantage is that they can relate to the feedback and use it *in* the course rather than getting feedback, knowledge assessment and awareness *after* the course ends.

This approach allows teachers to use the exam grading process as an in-course learning device more efficiently.

STUDY

This section presents a summary of student and teacher reflection essays collected after each course regarding the effects of the new interaction design course curriculum on learning and teaching aspects.

Method

According to Myers (1997) the researcher's impression and reaction are one of many data sources in qualitative research. The method used in this case is based on students' and instructors' written reflections at the end of the course. The study's empirical data currently consists of 9 student reflection essays, and 3 instructor reflections. The student data comprises 8,472 words, with an average of 942 words per essay (median 936 words per essay). Instructor data consists of 3,581 words (average 1,193; median 1,196).

Students were asked to submit personal reflections after all course activities were completed (save for the third examination feedback step; we wanted the students to have the course as fresh in memory as possible and not burden the students with extra assignments when the next period's courses had started). The essays were then analyzed using the affinity diagram technique, where quotes were coded and related to the new structure and content (corresponding to the material in sections 3.3-3.8). This approach allows us to pinpoint assessments of the learning and teaching experiences of the new course features.

Results

We specifically examined the material for statements regarding the new course framework. That is, positive and negative comments about content and structure changes covered in sections 3.3-3.8. The results are shown in Table 1.

Overall, both student and instructor essays contains positive sentiments on the examined aspects. Only two negative aspects stand out, and they both concern self-reported teacher workload.

Table 1.
Teaching and learning aspects related to the presented course framework.

Framework aspect	Main effects	Sample quote
Common theme & field lecture (3.3)	+ Deepened understanding of the importance and increased insight derived from contextual research. + Low rate of reported praxis chock + Fascilitates reflection-on-action. - Long day at the library for the instructor due to having to limit the group size on-site.	"Fieldwork experience at the library was very valuable. Now I understand what the book says about fieldwork."
Workshops (3.4)	+ Procedural knowledge increase. + Holistic perspective on the complete design process.	"If this stuff would have been covered in a regular lecture, I wouldn't have learned half as much as I did at the library visits."
Alignment of sub projects (3.5)	+ Increased understanding of the design process due to workshop and project phases reinforcing each other.	"I felt I was in control of the design process since I had experienced it in workshop. It helped us plan the design project."
Collective ownership (3.6)	+ Increased understanding of the importance of communicating empirical findings efficiently. + Practice in basing design on research carried out by others.	"It's easy to forget why we present course work. Now that peers would use it, it made so much sense!"
Presentation volume (3.7)	+ Understanding the value of being able to present research data effectively. + Understanding the value of integrating several research data sources in the design.	"We could follow the other teams' progress and be inspired by them. We also got continuous feedback on our own projects"
Exam feedback loops (3.8)	+ Less stress and more control; allowing for continuous reflective actions. - Increased teacher effort in grading due to increased number of exams	"Having three exams worked extremely good. It made it easier to focus, and less stressful (even though I ended up reading just as much, if not more)"

Notes:
Plus signs ('+') annotate positive effects.
Minus signs ('-') annotate negative effects.
Section references explaining the framework aspects are in parenthesis.

It seems reasonable to infer that the field lecture helped students increase their zone of proximal development, evident in sentiments such as: *"Approaching and interviewing strangers is hard. But having the introduction at the library and getting practical tips from the instructor how to do it made this easier". At the same time, statements related to decreased praxis chock seem to follow with increased ZPD. The theoretical frameworks help identify interesting dynamics of ZPD, procedural knowledge, and praxis chock.* There are several examples of reflection-on-action afterwards based

on different situations, that give such insights: *"I don't think there was someone in the group who had considered that we would actually have to talk to strangers. When it was time to conduct the interviews, I think we all experienced a mild panic at first as it was not easy to find on spontaneous follow-up questions that could give us more information about what the respondents liked with our idea. [...] [interviewing] turned out to run smoother later."*

On a different note, we experienced that some students never had visited the city library before. Therefore, we feel that introducing our students to this environment is an added bonus in itself, which chimes in with our overarching mission to provide learning environments for future educated IS designers.

CONCLUSIONS

Our study shows that students explicitly reflect about design practice. It is encouraging and a sign of success to find several accounts of "a-ha moments", and eye-openers in the data. The reflection statements have given us indications that contextualized "lectures" have lessened the experience of *praxis chock*, and at the same time allow students to increase their ZPD The relationship between praxis chock and ZPD is an interesting direction for future research, and we find that qualitative analysis of self-reports displaying reflection-on-action is a suitable method for investigating this. Procedural knowledge has balanced the previous focus on declarative knowledge thanks to the workshops. We also found that classroom interactivity and student motivation has increased for each presentation opportunity, and that students feel more secure in their understanding of the required readings due to the tighter examination feedback loops. Furthermore, students display insightful reflections on the importance on packaging and presenting research data. It is not enough to "know" the outcomes of field research—it is just as important to be able to explicitly use data to be able to trace design decisions in the process, and to effectively present research data to other teams (and future clients).

Course restructuring is a never-ending work, so refinements of this approach will be carried out continuously. We also plan to incorporate the successful aspects of this venture into other (design-oriented) courses at our department. From a knowledge-theoretical stand-point, we believe this work could be developed towards a contribution in answering the question of how design education can evolve and be established more firmly within—and positively affect—the university educational model in general.

Returning to the research question, we have clear indications from both a student and teacher perspective that the suggested course framework seems to result in an effective way to teach interaction design that chimes in with the notion of the reflective practitioner and designerly way of thinking. We feel our approach helps students build a designer identity and purpose. As one student put it: "*We actually solve real problems for real people—and not fabricated classroom exercises!*"

Immediate next steps include devising and introducing course components focused on ethics and sustainability from a design perspective. With those in place, we believe our future interaction designers are prepared to truly shape our digital and interactive society for the better.

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JOINT CONFERENCE
May 21st, 22nd and 23rd 2014 in Nashville, TN at the Holiday Inn Vanderbilt

Academic Business World International Conference (ABWIC.org)

The aim of Academic Business World is to promote inclusiveness in research by offering a forum for the discussion of research in early stages as well as research that may differ from 'traditional' paradigms. We wish our conferences to have a reputation for providing a peer-reviewed venue that is open to the full range of researchers in business as well as reference disciplines within the social sciences.

Business Disciplines

We encourage the submission of manuscripts, presentation outlines, and abstracts pertaining to any business or related discipline topic. We believe that all disciplines are interrelated and that looking at our disciplines and how they relate to each other is preferable to focusing only on our individual 'silos of knowledge'. The ideal presentation would cross discipline. borders so as to be more relevant than a topic only of interest to a small subset of a single discipline. Of course, single domain topics are needed as well.

Conferences

Academic Business World (ABW) sponsors an annual international conference for the exchange of research ideas and practices within the traditional business disciplines. The aim of each Academic Business World conference is to provide a forum for the discussion of research within business and reference disciplines in the social sciences. A secondary but important objective of the conference is to encourage the cross pollination of disciplines by bringing together professors, from multiple countries and disciplines, for social and intellectual interaction.

International Conference on Learning and Administration in Higher Education (ICLAHE.org)

All too often learning takes a back seat to discipline related research. The International Conference on Learning and Administration in Higher Education seeks to focus exclusively on all aspects of learning and administration in higher education. We wish to bring together, a wide variety of individuals from all countries and all disciplines, for the purpose of exchanging experiences, ideas, and research findings in the processes involved in learning and administration in the academic environment of higher education.

We encourage the submission of manuscripts, presentation outlines, and abstracts in either of the following areas:

Learning

We encourage the submission of manuscripts pertaining to pedagogical topics. We believe that much of the learning process is not discipline specific and that we can all benefit from looking at research and practices outside our own discipline. The ideal submission would take a general focus on learning rather than a discipline-specific perspective. For example, instead of focusing on "Motivating Students in Group Projects in Marketing Management", you might broaden the perspective to "Motivating Students in Group Projects in Upper Division Courses" or simply "Motivating Students in Group Projects" The objective here is to share your work with the larger audience.

Academic Administration

We encourage the submission of manuscripts pertaining to the administration of academic units in colleges and universities. We believe that many of the challenges facing academic departments are not discipline specific and that learning how different departments address these challenges will be beneficial. The ideal paper would provide information that many administrators would find useful, regardless of their own disciplines